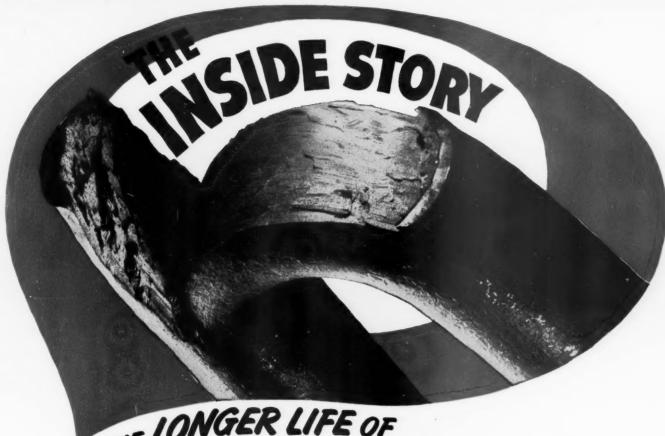
RAILWAY

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WEEK AT A GLANCE

CURRENT RAILWAY STATISTICS

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CURRENT RAILWAT STATISTICS
Operating revenues, six months 1952
Operating expenses, six months 1952
Taxes, six months 1952
Net railway operating income, six months 1952
Net income, estimated six months 1952
Average price railroad stocks August 19, 1952
Car loadings, revenue freight 32 weeks, 1952
Average daily freight car surplus August 16, 1952
Average daily freight car shortage August 16, 1952
Freight cars delivered July 1952
Freight cars on order August 1, 1952
Freight cars held for repairs August 1, 1952
Average number railroad employees Mid-July 1952

In This Issue . . .

WHERE COOPERATION between corporate components of an industry is as close as it is between railroads, it is natural enough to find an equally high degree of cooperation between railroad officers. Nearly all of the latter, in fact, are—or can be—members of one or more societies organized to promote their particular professional capabilities, be they engineers, accountants, dining car superintendents or magazine editors. The one conspicuous exception seems to be the public relations officers, who, to date, have not had their own organization within the railroad industry. That deficiency, as pointed out in a page 38 editorial, may shortly be remedied—"the potentialities for good of such an organization are very great, and all necessary encouragement to the new society should be forthcoming from the industry."

ONE OF THE YEAR'S BIGGEST equipment orders—\$30 million for 136 passenger carrying cars of various types, 10 locomotives and 100 freight cars—has been placed by the New Haven. Other equipment developments of the past week included a 500-box-car order to A.C.F. from the Katy; and an SP announcement of substantial expansion of radio communications on its various mountain territories.

WHAT HAPPENS to freight cars—and their contents—when they are subjected to impact speeds beyond the limit of capacity of present cushioning devices? What can be done to protect both cars and lading against the higher speeds which seem likely to become more common with the constant urge to get cars through yards in less time? Those questions were the subject of a symposium of representatives of draftgear manufacturers and car builders at a recent meeting of the A.S.M.E.; their remarks on the subject appear in condensed form, beginning on page 42.

HOW RADIO can be used as an aid to railroad construction forces, when they are necessarily scattered over a wide territory, is the subject of the feature article which starts on page 48. The particular instance covered in the article is the Rock Island's Atlantic-Council Bluffs line relocation.

In Washington . . .

AFTER HAVING BEEN COMPARATIVELY GENEROUS in granting several recent applications for relief from competitive bidding in sale of railroad bonds, the I.C.C. has about-faced and denied

WEEK AT A GLANCE

STATE OF THE PARTY OF THE PARTY

WILLIAM P. BARTEL, secretary of the Interstate Commerce Commission since March 16, 1937, will retire from that position on August 31. As Railway Age stated on July 14, page 14, in reporting the announcement of Mr. Bartel's decision to retire, more than 46 of his more than 50 years in government service have been with the I.C.C. such relief to the Illinois Central in its application for private sale of \$62,000,000 of consolidated mortgage bonds. Also on the financial side, the commission received the anticipated application for an operating consolidation of the Central of New Jersey and the Central of Pennsylvania (Railway Age, August 11, page 13); and another proposal for reorganization of the Long Island. This one, from the Long Island Transit Authority, was immediately described by Pennsylvania President Walter S. Franklin as "a plan for confiscation." It seems likely to encounter local opposition as well, since it involves funding or compromise of back taxes—though this feature is probably a sine qua non of any potentially successful plan for getting the burdened LI out of bankruptcy.

NO MORE CONTRACTING of diesel-electric locomotive repairs to locomotive manufacturers is one of nine points in a so-called "fringe benefit" program which the machinists union plans to present to the railroads "in the near future." The union, its own magazine reveals, will "urge railroads to secure or modernize machinery to perform all types of work in their own shops."

A SMALLER AND SMALLER SHARE of the total national income is being spent for railroad transportation, according to a table reproduced in the news columns from the latest "Monthly Comment." Between 1939 and 1951, when national income was steadily rising, from \$72.5 billion to \$277.6 billion—and when the railroads were hauling more ton-miles of revenue freight per capita—their operating revenues were declining from 5.58 cents per dollar of national income to 3.79 cents.

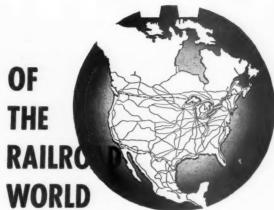
FOUR TIMES AS MUCH REVENUE per ton-mile was received by Class I intercity trucks as by Class I railroads in 1951, according to the latest "Monthly Comment" of the I.C.C.'s Bureau of Transport Economics and Statistics. Even allowing for the truckers' penchant for carrying only profitable traffic, and leaving the unprofitable business to the railroads, the figures—detailed in the news pages—make one wonder about the vaunted "economy" of truck transportation.

... And Elsewhere

LOTS OF PEOPLE, it seems, want to know how to get along better with other people. And a lot of them evidently think K. C. Ingram, assistant to the president of the Southern Pacific, can tell them how to do it. At any rate, his recent book, "Winning Your Way with People," is going into its third translation. Already published in Dutch, and being published in German, it is soon to be printed also in French.

A RECAPITALIZATION PLAN for the Missouri-Kansas-Texas may be submitted for I.C.C. and stockholder approval late this year or early next, as soon as interest on adjustment mortgage bonds is on a current basis. Only one matured coupon is still outstanding, and that, it is hoped, will be paid shortly. The recapitalization plan would then be designed to reduce substantially, or wipe out entirely, accumulated dividends of \$145.25 per share on the 7 per cent preferred stock.







Car Situation Not As Good As It Looks, Gass Reports

Freight-car ownership of Class I railroads and their car-line affiliates declined by 1,207 cars in July, the retirements of the month having exceeded the installations by that amount.

This and other notes of caution were sounded by Chairman Arthur H. Gass of the Car Service Division, Association of American Railroads, as he commented last week on equipment data which "reflect what in some circumstances might be considered a satisfactory condition." Mr. Gass' comments were embodied in his latest monthly review of "The National Transportation Situation."

The equipment data ke had particularly in mind were those comparing the current situation with that existing at the same time last year. They showed that ownership is now greater by about 27,500 cars, and that serviceable ownership is greater by about 17,000 cars. The average daily freight car shortage last month was "less than one-fourth" the average for July 1951, Mr. Gass also noted.

"Upon further analysis, however," he added, "the figures become less encouraging. The gain in ownership over a year ago is only about half as great as the gain contemplated in the long-sought '10,000-car-per-month' program, and to a large extent the increase in ownership has come about by retiring cars at a subnormal rate. So far as the improved car supply is concerned, the reduction in the daily freight car shortage in July was no more than would be

expected with a drop in carloadings to a level 25 per cent below July last year, and lower than in any corresponding period since 1935."

The C.S.D. chairman went on to say that July's 1,207-car loss in total ownership "marked the end of a 19-month period of gradually increasing ownership which began in December 1950 and which was interrupted only once—July 1951—when freight car production was sharply reduced by strikes and floods." Moreover, Mr. Gass anticipated that "July's loss in ownership will presumably be followed by additional, and greater, losses throughout the next several months as the fu'l effects of the steel strike are felt."

He then proceeded to report that "a more encouraging aspect of July equipment data is that additional new freight cars were placed on order in sufficient number to maintain the order backlog at very nearly the July 1 level, while locomotive orders exceeded deliveries and thereby raised the backlog for that type of equipment." New equipment on order August 1 included 79,514 freight cars and 1,211 locomotives, according to Mr. Gass' figures which cover Class I railroads and their car-line affiliates.

In his usual review of equipment conditions by types of cars, the C. S. D. chairman said that, "barring unforeseen difficulties," shippers requiring box cars "should feel less pinch in car supply than has prevailed in years past during this season of the year." As to hoppers and gondolas, the end of the

steel strikes has brought heavy demands, with "very tight" situations and "some shortages." As to refrigerator cars, "the important perishable loading territories have been well supplied . . . during August."

Freight car detention reports from shipper car efficiency committees indicated that cars detained beyond the free time of 48 hours averaged 23.08 per cent of those placed in July. This compared with June's 19.86 per cent. and it was the highest percentage of detention reported in more than nine years—since May 1943. It was caused "primarily by the many strikes and shutdowns around the country," Mr. Gass said. He went on to note that the detention figure for the first seven months of this year was 16.45 per cent.

He also said that, in July, railroad agents reported 2,314 cars left by consignees with debris of various sorts after unloading.

Market Has Been Tighter "Wringer" Than the I.C.C.

Recent market values of new-company securities, received by holders of the "most junior" old-company bonds of reorganized railroads, were substantially less than the par or stated values of such securities. This was generally true, but the Norfolk Southern case was an exception.

Figures pointing up the situation were published in the latest "Monthly Comment" issued by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission. The compilation was prepared by the commission's Bureau of Finance.

It compared the June 30, 1952, market values of the new-company se-

curities with their values (stated or par, plus any cash involved) at the time they were received by holders of the "most junior issues of bonds of substantial size" which the old companies had outstanding. The market values were also compared with claims filed by holders of the old-company bonds.

The plan of the comparisons may be indicated by use of the Norfolk Southern's listing. In the case of that road, the "most junior" of the old-company bonds was an \$11.6 million issue of first and refunding 5s, due in 1961. Claims in the amount of \$1,321 were filed with respect to each \$1,000 bond of the issue, and the reorganization plan awarded new-company securities with a par or stated value of \$1.080.

The June 30, 1952, market value of those new-company securities was \$1,-150, or 106.5 per cent of the par or stated value. Also, the market value was 87.1 per cent of the \$1,321 claimed by the old-company holders.

The new Norfolk Southern's "management, accounting, financial and other practices" are being investigated by the commission in a pending proceeding. The road's financial showing has been the management's defense against allegations that salaries and expenses of its officers have been unusually high (Railway Age, June 30, page 11).

Other listings in the "Monthly Comment" table showed that June 30, 1952. market values of the new-company securities ranged from 14.1 per cent of the stated or par value in the

case of the Minneapolis & St. Louis to 96.7 per cent in the case of the Seaboard Air Line. The ratios of newsecurity market values to related amounts of claims filed by the oldcompany bondholders ranged from 0.6 per cent in the case of the M. & St. L. to 71.3 per cent in the case of the Chicago & Eastern Illinois.

New Haven Tries Out Cafe-Coach

To provide fast dining service at below standard prices, the New York, New Haven & Hartford is experimenting with a cafe-coach converted from former parlor-lounge-baggage car. The experimental car, one of two to be tried out in actual service, has an electric kitchen, a dining section accommodating 24 passengers and a number of regular coach seats. Its operation is said to be flexible enough to permit use of crews of from two to 12 men. depending on the anticipated patronage. The car was first tried out in the Ventune," weekend train between New York and Cape Cod, and may later be assigned to service between New York and Springfield, Mass.

I.C.C. Grants Relief From Filing of Contracts

The Interstate Commerce Commission has issued an order granting the railroads general relief from requirements of the Interstate Commerce Act's section 6(5) which provides for the filing by each road of all its contracts,

agreements, or arrangements with other carriers. The relief order is scheduled to become effective September 15.

It was issued under that proviso of section 6(5) which stipulates that the commission may provide for exceptions to the filing requirements. Meanwhile, the order reserved for the commission the right to modify it "at any time in the future"; and it also said that the relief was subject to the condition that any carrier involved "promptly furnish upon request of the commission, or any bureau thereof, a copy of any contract . . . requested by such bureau or commission."

Machinists to Protest Contract Work on Diesels

A proposal to have railroads stop contracting out diesel-electric shop work to locomotive manufacturers is one of nine points which the International Association of Machinists plans to bring before the railroads in the near future.

The nine-point program was made public in the August 21 issue of "The Machinist," weekly publication of the union. The paper reported I.A.M. will invite all non-operating labor organizations to "join immediately in a new move to improve working conditions

for railroad employees." So-called "fringe benefits" are the basis for the I.A.M. proposals. The nine points cover severance pay, paid holidays, overtime, night differentials, vacations, layoffs, apprenticeship, apprenticeship.

passes, and contract work.

The "contract work" point reflects the union's concern over railroad handling of diesel-electric shop work. According to "The Machinist." the union will "urge railroads to secure or modernize machinery to perform all types of work in their own shops, thus guaranteeing continuous employment.

"The time has come when railroad agreements should be brought into line on fringe issues," I.A.M. Vice-President Earl Melton said. He added that railroad agreements have generally kept pace with other industries as far as wages and job security is concerned. but "our members on every line are demanding action on these important fringe issues.'

Four-Man Crew Enough on Four-Car RDC Trains

Even when Budd RDC cars are operated in trains of three or four units a four-man crew-engineman, "fireman." conductor and trainman-is adequate for all reasonable safety needs, the Massachusetts Department of Public Utilities has ruled, in dismissing a complaint filed by a representative of the Order of Railway Conductors against the Boston & Albany (New York Central).

In its decision, the department pointed out that "On these trains . . . the fireman is not in any locomotive,



HARRY R. HILL (right), instructor of diesel-electric locomotive main-tenance and operation at the General Electric Company's locomotive and car equipment department in Erie,, Pa., recently returned from a seven-month tour during which he con-ducted schools in Mexico, Cuba and

four South American countries. Mr. Hill traveled 22,000 miles, instructing more than 500 railroad operating maintenance personnel. of the trip was to promote and initiate an educational program on inspection, operation and maintenance of dieselelectric locomotives.

but sits in the Budd car and is subject to perform the duties of a brakeman in case of emergency. . . . It seems immaterial how the employee is designated as long as he is qualified to do those things that are necessary for the safety of the public and employees of the railroad. . . . We do not intend to permit any carrier under our juri-diction to fail or refuse to take any reasonable precaution to protect the public, but there is a line which separates reasonable precaution from unreasonable requirements."

Quick Assets, Working Capital Going Down

The amount of cash and temporary cash investments ("quick assets") he'd by Class I line-haul railroads declined \$81.5 million, or 4.6 per cent, during the 12 months ended May 31.

This was shown in the latest "Monthly Comment" issued by the Bureau of Transport Economics and Statistics. Interstate Commerce Commission, which puts the May 31 totals of 1951 and 1952 at \$1,772.2 million and \$1,690.7 million respectively. The respective ratios of quick assets to total liabilities were 76.3 and 73.4

bilities were 76.3 and 73.4.

Meanwhile, the roads' corporate working capital (total current assets less total current liabilities) was down 3.7 per cent. from \$1,405 million îo \$1,352 million. Excluding materials and supplies. the net working capital was down 20.7 per cent, from \$544.7 million to \$431.7 million. The materials and supplies account was up from \$860.1 million to \$920.6 million.

F. G. Gurley to Address Transport Convocation

The railroad industry will be represented at a two-day convocation meeting on transportation, to be held in Chicago on September 8 and 9, by Fred G. Gurley, president of the Santa Fe. The meeting is one of 12 such gatherings being held in connection with the Centennial of Engineering—a celebration of the founding of the American Society of Civil Engineers just 100 years

Charles F. Kettering, research consultant for General Motors Corporation, will preside over the transportation meeting. The program will include talks by representatives of public and private air, highway, marine and farm transportation. It will be held in the Conrad Hilton Hotel and will be open to the public.

(For a resumé of participation in the centennial by the American Railway Engineering Association see Railway Age, August 4. page 14.)

The 11-day period from September 3 to 13 will witness a total of 12 convocation meetings covering engineering within basic fields of modern living. More than 1.000 engineers and scientists are scheduled to appear on the various rostrums. It is expected that



THE "BLUE BIRD ROOM," a new semi-private accommodation available either for private parties or as a lounge for first-class passengers, has made its appearance aboard the streamlined "Blue Bird" of the Wabash between Chicago and St. Louis. The room is beneath the observation dome of a new parlor car recently built for the train by the Pullman-Standard Car Manufacturing

Company. The train now offers two dome coaches and two dome parlor cars in addition to dining, tavern and conventional streamlined coach accommodations. A third dome coach has been transferred to the streamline "City of Kansas City" between St. Louis and Kansas City which will permit the Wabash to offer "Domeliner" service on its Missouri River Valley line for the first time.

more than 30,000 U. S. engineers will be in attendance, and delegations from Canada, Latin America, Australia, North Africa, the Far East and virtually all European nations this side of the "Iron Curtain" will bring the influx of visitors to Chicago to an estimated 10,000 in excess of that at either of the recent political conventions.

In addition to the convocation meetings, the centennial celebration includes performances several times daily on the grounds of the Museum of Science and Industry of the musical pageant, "From Adam to Atom." and a new semi-permanent engineering exhibition in the museum itself. There will be an "International Banquet" on September 10 with more than 5.000 persons expected to attend.

Mediation Continues In NYC Strike Threat

Mediation proceedings in the threatened strike by three operating brotherhoods against New York Central lines east of Buffalo were still in progress as this issue of *Railway Age* went to press, but the meetings had been moved from New York to Washington, D. C.

A "package" proposal for settlement of the pay and grievance claims which led to the strike threat, proposed by representatives of the National Media-

tion Board, had been accepted by the railroad, but rejected by the brother-hoods.

As reported in last week's issue, unions involved in the dispute are the Order of Railway Conductors, the Brotherhood of Locomotive Engineers, and the Brotherhood of Locomotive Firemen & Enginemen. The Brotherhood of Railroad Trainmen is likewise involved, but is under court order not to participate in a strike as a result of the widespread "sick" strike by its members in February 1951.

Dollar of Gross Yielding Best Net Since 1948

During the first six months of this year, Class I line-haul railroads realized 8.6 cents in net railway operating income from each dollar of their gross revenues. The six months net income was equivalent to 5.7 cents for each dollar of gross.

These figures, with comparisons showing that they were the most favorable since 1948, were presented by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission in the latest issue of its "Monthly Comment." The compilation covered the first half of the years back through 1946. The net railway operating incomes ranged from 4.3 cents per dollar of gross in that year to nine

cents in 1947. The 1948 figure was 8.9 cents.

As to net income, there was a deficit in the first half of 1946. The range for the other six years was from 1949's four cents to this year's 5.7 cents, the latter having been the same as the figure for 1948's first half. The actual net incomes ranged from the 1946 deficit, which was \$21.4 million, to \$290 million for the first six months of this year. The range of net railway operating incomes was from 1946's \$154.8 million to \$441.8 million for the first half of this year.

SP Expanding Use of Radio

Extensive radio communications systems are being installed by the Southern Pacific to facilitate train operations in the Sierra, Cascade and Siskiyou mountains, enlarging the railroad's already heavy use of electronics, according to D. J. Russell, president of the company. Freight trains operating over the Tehachapi mountains in California and along the southern California coast have been equipped with radio for some time, Mr. Russell said, adding that use of radio to speed communications in large switching yards of the railroad has been increasing rapidly for the past six years.

The new installations, being carried on under direction of A. E. DeMattei, SP superintendent of communications, are expected to be completed before

next winter.

In the Sierras, radio will be used to and from the "City of San Francisco," "San Francisco Overland" and "Gold Coast" passenger trains; to and from mobile units of snow-fighting equipment; and between fixed stations in case of failure of wire lines. Radio was used experimentally on snow-fighting equipment in the Sierras last winter. First permanent installations in the territory have been authorized in stations at Colfax, Emigrant Gap, Nor-

den and Truckee; these radios can be cut into wire circuits at any of these points to bridge possible wire trouble or to permit contact with any radio equipped train within range of the stations.

The business cars of Superintendent M. L. Jennings of the Sacramento division and L. P. Hopkins of the Portland division have already been equipped with radios, and are in regular communication with fixed radio stations while traveling over the divisions.

In the Cascade mountains of western Oregon, radios have been installed temporarily at Eugene, Carter, Oakridge, McCredie Springs, Wicopee, Cruzatte, Fields, Cascade Summit and Crescent Lake, and before next winter will be on all freight trains operating over the Cascade and Siskiyou mountains.

In its mountain radio installations the railroad is using three radio frequencies, one frequency being reserved for train crews in communicating between head and rear ends of trains, one for snow-fighting equipment, and the third for communications with or through fixed stations. In yards, other frequencies are used for switch engines and "walkie-talkies."

Competitive Bid Relief Subject to New Rules

The Interstate Commerce Commission has published instructions to cover the filing of special applications for competitive bidding relief on new railroad securities. They become effective September 1.

When the commission established competitive bidding requirements in 1944, it indicated special instructions would be issued later to cover applications for relief. There have been several such applications recently.

The new rules specify that a special application for competitive bidding re-

lief should be filed only when, for any reason, it is not practicable to include such a request in the usual application for authority to issue securities.

If the separate application is made, however, the applicant must show, among other things, why relief is deemed necessary, and must include a statement that no discussions have been held with respect to terms of sale with any prospective purchaser. A statement must also be included as to why the special application is necessary.

The commission said that as a general rule public hearing will not be held in connection with special applications "unless good cause therefor is shown or unless the commission deems a hear-

ing desirable.

Tariff Study Group Sends Out More Questionnaires

The Railroads' Tariff Research Group has sent out the twelfth and thirteenth of the series of questionnaires whereby it is seeking views of interested parties on ways and means of simplifying and otherwise improving tariffs.

Questionnaire No. 12 asks one main question and three subsidiary questions. The main question is: What is the best item arrangement for narrative matter in tariffs? The subsidiary questions are: Where should the item number be shown? Where should the item caption or subject appear? Is narrative matter more easily read and more accurately comprehended if arranged in double columns instead of straight across the page?

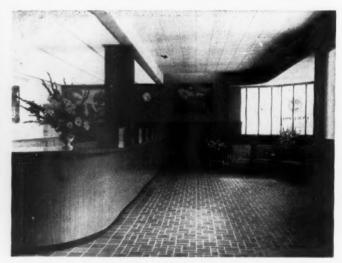
Questionnaire No. 13 asks: How many different types of binders for tariffs are in use and how widely do

binding positions vary?

Unlike previous questionnaires, which went to a larger group of tariff users, the thirteenth went only to chief clerks, office managers, or persons in similar capacity, in the tariff using establishments. "Before we can de-



THE FLORIDA EAST COAST'S new air-conditioned ticket office at Miami Beach (left), is in the heart of the island resort's shopping district. Its interior (right), is decorated



with sepia-finished photo-murals of scenes along the FEC. Above the walnut wainscoting the walls are colored aquamarine. Flooring is of clay tile and lighting is indirect.

CAR SURPLUSES, SHORTAGES

Average daily freight car surpluses and shortages for the week ended August 16 were announced by the Association of American Railroads on August 21 as follows:

August 22	Surplus	Shortage
Plain Box	508	1,521
Auto Box	676	19
Total Box	1,184	1,540
Gondola	338	1,831
Hopper	2	1,715
Covered Hopper	3	26
Stock	1,317	8
Flat	71	190
Refrigerator	3,618	0
Other	595	0
Total	7,128	5,310

termine the feasibility of punching tariffs to fit binders in use a determination must be made as to the number of differing types of binders and the variations in binding positions," the group's explanatory statement said.

Freight Car Loadings

Loadings of revenue freight in the week ended August 16 totaled 805,704 cars, the Association of American Railroads announced on August 21. This was an increase of 23,533 cars, or 3 per cent, compared with the previous week; a decrease of 23,694 cars, or 2.9 per cent, compared with the corresponding week last year; and a decrease of 45,536 cars, or 5.3 per cent, compared with the equivalent 1950 week.

Loadings of revenue freight for the week ended August 9 totaled 782,171 cars; the summary for that week, compiled by the Car Service Division, A.A.R., follows:

REVENUE FREIGHT CAR LOADINGS

KEAEIAGE L	KEIGHT CA	AK LOADIN	03
For the week	ended Sati	urday, Augu	st 9
District	1952	1951	1950
Eastern	124,687 153,644 57,085 120,345 146,325 120,284 59,801	135,553 163,527 64,005 122,300 139,589 123,472 60,919	149,255 172,585 64,233 130,458 140,347 128,763 62,067
Total Western Districts	326,410	323,980	331,177
Total All Roads	782,171	809,365	847,708
Commodities: Grain and grain products Coal Code Forest products Ore Merchandise I.c.I. Miscellaneous	54,173 7,208 138,870 10,722 46,646 92,819 71,997 359,736	53,977 8,085 143,690 16,641 48,685 88,625 73,408 376,254	54,488 7,630 154,216 15,059 51,841 84,389 88,211 391,874
August 9 August 2 July 26 July 19 July 12	782,171 732,920 607,271 608,957 572,387	809,365 813,388 820,476 805,378 779,308	847,708 837,430 845,011 830,076 789,406

Cumulative total 32 weeks22,287,219 24,534,387 22,588,291

In Canada.—Carloadings for the seven-day period ended August 7 to-

ANNUAL TRAFFIC AVERAGES BY COMMODITY GROUPS FOR CARLOAD TRAFFIC

(Data extracted from I.C.C.'s analyses of the "one per cent waybill sample" submitted by railroads)

Year	All Commodi- ties	Products of Agriculture	Animals and Products	Products of Mines	Products of Porest	Manufactures and Miscellaneous
		Ave	rage Load per (Car (tons)		
1947	41	35	14	56	34	31
1948	42	35	15	57	34	31
1949	41	35	15	57	33	30
1950	41	34	15	58	34	30
1951	42	36	15	58	34	31
		Aver	age Haul per To	on (miles)		
1947	343	527	708	231	488	435
1948	337	509	724	228	490	454
1949	337	497	739	219	532	438
1950	339	501	747	226	545	449
1951	344	511	786	231	535	460
		Average Rev	enue per Hundi	redweight (cents)		
1947	21	32	70	10	25	36
1948	25	37	85	11	28	45
1949	27 27	38	92	12	32	47
1950	27	39	91	12	33	48
1951	27	39	95	12	32	50
		Average	Revenue per C	ar (dollars)		
1947	178	225	202	116	165	225
1948	207	256	250	128	191	279
1949	220	267	269	135	211	283
1950	222	268	269	141	219	289
1951	232	283	282	144	220	309
		Average Reven	ue per Ton-Mile	(Short-line) (cen	ts)	
1947	1.27	1.22	1.98	.89	1.01	1.68
1948	1.47	1.44	2.35	.99	1.15	1.99
1949	1.60	1.54	2.48	1.07	1.19	2.16
1950	1.59	1.57	2.44	1.08	1.20	2.14
1951	1.58	1.54	2.41	1.07	1.20	2.16

-From the August 15, 1952, issue of "Monthly Comment," published by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission.

taled 76,837 cars, compared with 129,-755 cars for the previous 10-day period, according to the Dominion Bureau of Statistics

CHELIBEICO		*
	Revenue	Total Cars
	Cars	Rec'd from
	Loaded	Connection
Totals for Canada:		
August 7, 1952	76.837	30.811
July 31, 1952	129,755	42,786
Cumulative Totals		
August 7, 1952	2.452.179	1.053.586

Trucks' Ton-Mile Revenue 4 Times That of Railroads

Ton-mile revenues of Class I intercity truckers averaged 5.158 cents in 1951, as compared with an average of 1.336 cents for Class I railroads. This comparison was made in the August 15 "Monthly Comment" issued by the Bureau of Transport Economics and

Statistics of the Interstate Commerce Commission.

"The overall consist of motor carrier traffic is presumably composed of relatively higher rated commodities than the overall consist of rail traffic," the bureau said.

The truck figure of 5.158 cents is a weighted average of 1951 ton-mile revnues averaging 5.189 cents for common carrier truckers and 4.727 cents for contract carriers. The weighted averages of the 1942-1951 decade range from 1949's 5.162 cents to 1942's 3.74 cents. The railroad figures range from 1949's 1.339 cents to 1942's 9.32 mills.

On the basis of the latter as 100, the railroad index for 1951 was 143.3. On the basis of their 1942 weighted average as 100, the truckers' 1951 index was 139.7.

RAILROAD OPERATING REVENUES AND REVENUE FREIGHT TON-MILES COMPARED WITH NATIONAL INCOME AND POPULATION

(Classes I, II, and III Line-Haul Railroads)

	(Classes I, II, and	III Line-Maul Kailroads)	
Year	National income	Operating revenues 'per dollar of national income	Ton-miles of revenue freight per capita
	(Billions of dollars)	(Cents)	
1939	72.5	5.58	2,560
1940	81.3	5.35	2.844
1941	103.8	5.21	3,585
1942	137.1	5.50	4,760
1943	169.7	5.39	5.349
1944	183.8	5.18	5,363
1945	182.7	4.92	4,901
1946	180.3	4.28	4,212
1947	198.7	4.42	4,568
1948	223.5	4.38	4,374
1949	216.3	4.01	3,546
1950	239.2	4.01	3,900
1951	277.6	p3.79	p4,210
p= Preliminary.			

—From the August 15, 1952, issue of "Monthly Comment," published by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission.

ORGANIZATIONS

Materials handling equipment and other labor-saving devices will be the main topic at the next meeting of the South Water Market Traffic Club of Chicago, to be held on September 8 at 1146 West 14th place.

The Transportation Toastmasters Club, a new chapter of Toastmasters International, has been formed as an adjunct of the Traffic Club of Denver. The new group, which will hold its next meeting on September 8, tries to train its members to "think on their feet" and to quell "that nervous feeling" that often comes with being "called upon for a few remarks."

The Railway Systems and Procedures Association will hold its next meeting at the Palmer House, Chicago, September 10 and 11. The first day's session will begin at 10 a.m. A luncheon meeting the same day will feature as speaker Ben S. Graham, chairman of the future demands committee of the Standard Register Company. Mr. Graham, an authority on work simplification, will speak on that subject. On the second day, the feature will be a panel discussion of the "Yard and Terminal Problem," sided over by B. R. Gould, general manager of the Union. Mr. Gould's panel will consist of: A. H. Gass, chairman, Car Service Division, Association of American Railroads; J. L. Barngrove, Jr., superintendent of freight transportation, New York, New Haven & Hartford; J. R. Cantrell, terminal superintendent, Chicago & North Western; A. F. McSweeney, assistant chief of freight transportation, Pennsylvania; and T. J. O'Connell, chief of yard and terminal operation, Baltimore & Ohio.

The Women's Traffic Club of New York will open its 1952-53 club year with a dinner meeting on September 9, at 7 p.m., in the Tower Club of the Park Sheraton Hotel.

SUPPLY TRADE

Thor Germundsson has been appointed manager of the structural and railways bureau of the Portland Cement Association at Chicago, succeeding Leo H. Corning, who has been made director of promotion.

Albert W. McAbee has been appointed assistant manager of sales in the railroad, pig iron and chemical division of the Inland Steel Company, to succeed Leon C. Reed, who will retire August 31, under the company's retirement program.

Lewis A. Hester has been appointed manager, locometive sales, for the Baldwin-Lima-Hamilton Corporation, with headquarters at Eddystone, Pa. Mr. Hester began his career as an electrical inspector with the Norfolk & Western. He joined the Westinghouse Electric Corporation in 1923



Lewis A. Hester

as a member of the graduate student course and later worked successively as railway application engineer; railway commercial engineer; and manager, transportation sales department. In 1946 he was appointed manager of the transportation department for the Middle Atlantic district, the position he held before joining Baldwin.

James W. Leis, vice-president in charge of operations of the Magor Car Corporation, has retired after 42 years of service, but will remain as a member of the board of directors. The company has appointed E. O. Lunde, formerly chief engineer, as works manager.

OBITUARY

George E. Mace, transportation manager of the Commerce & Industry Association of New York, died on August 13 at the Miles Memorial Hospital, Damariscotta, Me., following an operation.

Fred W. Alger, assistant vice-president of the Pullman-Standard Car Manufacturing Company, died at his home in Chicago on August 3. Mr. Alger began his carbuilding career in the shops of the American Car & Foundry Co. at Detroit in 1923, later transferring to A.C.F.'s sales department in New York. Subsequently he became associated with the Standard Steel Car Company as sales agent, then joined Pullman-Standard in 1930 when Standard Steel was acquired by the Pullman group of companies. In May of this year he was promoted to the Birmingham sales office, but had been unable to take up his new duties because of illness.

EQUIPMENT AND SUPPLIES

New Haven Purchases \$30,000,000 of Equipment

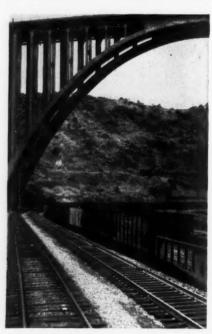
The New York, New Haven & Hartford has announced purchase of \$30,000,000 of new equipment. Included are 26 rail-diesel cars (Railway Age, August 11, page 15); 100 electric multiple-unit cars for service in the New York City commuter area; 10 passenger electric locomotives, also for service on the New York end of the line; 10 50-passenger Mack self-propelled rail buses; and 100 insulated freight cars for use primarily in shipping potatoes and paper.

The 100 new commuter cars will be of stainless steel construction with air conditioning, fluorescent lighting and plush seats. Eighty-nine will be of the all-coach type, seating 130 passengers each. Seven will be combination baggage-coach cars and four will be club cars for use by various commuter club

The New Haven also announced continuation of its program of rock ballasting and otherwise improving roadbeds and structures, with an estimated \$46,000,000 to be invested this year and next on these items.

FREIGHT CARS

The **Illinois Central** has ordered eight 30-yard drop door air dump cars from the Baldwin-Lima-Hamilton Corporation.



EMPTY HOPPER CARS return to coal mines via the Pennsylvania's Fort Perry branch under the graceful arch of the Westinghouse bridge at East Pittsburgh, Pa.

The Missouri-Kansas-Texas has ordered 500 50-ton box cars from the American Car & Foundry Co. at an approximate cost of \$3,250,000. Delivery of the cars—which include 200 50½-ft. units and 300 40½-ft. units—is scheduled for April 1953. The road's inquiry for this equipment was reported in Railway Age, July 7, page 15.

PASSENGER CARS

The Boston & Maine has ordered from the Budd Company three rail diesel cars at an approximate cost of \$495,000 for delivery late in 1952 or early in 1953. The order consists of two coaches and one combination coachbaggage unit, duplicating three cars already operating on the B&M.

The Illinois Central has ordered six sleeping cars of a new 11-double bedroom design from the Pullman-Standard Car Manufacturing Company. The new floor plan of the cars was worked out with officers of the Pullman Company and the road's passenger department. By limiting accommodations to 11 rooms, a public washroom and additional linen storage space can be provided. When delivered by the builder some time during the third quarter of 1953, the cars will be assigned to the "City of Miami" and the "Panama Limited."

LOCOMOTIVES

1,493 New Locomotives Installed in 7 Months

Class I railroads in the first seven months of 1952 installed in service 1,493 new locomotives, 10 more than were placed in service in the same period of 1951, the Association of American Railroads announced last week.

New locomotives installed in the first seven months of this year included 1,-483 diesel-electrics, nine steam and one electric. In the same period last year, these roads placed in service 1,-471 diesel-electric, 10 steam and two electric locomotives.

Class I roads had 1,211 new locomotives on order on August 1, 1952. Of this number, 1,186 were diesel-electric and 25 were steam. On the same date last year the order backlog was 1,602 locomotives, of which 1,588 were diesel-electric, 12 steam and two electric.

In the month of July, the roads installed 120 new locomotives, compared with 174 in the same month last year. Those placed in service this year were all diesel-electrics except for two steam.

The **Transportation Corps** has awarded contracts for construction of three diesel-mechanical industrial-type locomotives. Brookville Locomotive Works, Brookville, Pa., will build one 3-ton unit for \$4,700, and Plymouth Locomotive Works Plymouth, Ohio, will build two 5-ton units costing \$6,104 each. The units are for use overseas.

CAR SERVICE

I.C.C. Service Order No. 889, effective from August 12 until December 31 unless otherwise modified, prohibits railroads from moving a car loaded with lumber or lumber products in Oregon or Washington, and tendered to be forwarded to another point to complete loading, unless the car leaves the first loading point with a load equal to at least 50 per cent of its marked capacity. The order was issued upon representations of the Defense Transport Administration that "shippers are appropriating such cars and shipping them almost empty to other points to complete loading."

A few hours after the foregoing became effective, the commission issued Revised Service Order No. 889, which was scheduled to supplant the original order at 12:01 a.m. August 15 and remain in effect until December 31, unless otherwise modified. The revised order has all provisions of the original order and an additional stipulation that "partially loaded cars arriving at stopoff point to complete loading shall be charged against the final shipper's loading. Also, it sets up a permit system whereby shipments involving "exceptional circumstances" may be exempted from the order's provisions. The permit agent is Charles W. Taylor, director of the commission's Bureau of Service.

The I.C.C. has set back to August 25 the expiration dates of two service orders which were issued to meet conditions arising as a result of the strike in the steel industry. The orders are Nos. 884 and 885, whereby the railroads got authority to load cars with ex-lake iron ore and import coal, holding such cars free of demurage. In a circular announcing the commission's action, Chairman Arthur H. Gass of the Car Service Division, A.A.R., said the action was taken because two steel companies which were

granted permits under the order had not settled their strikes. Meanwhile, all outstanding permits covering mills which have resumed operations have been cancelled.

CONSTRUCTION

Chicago & Illinois Midland.—A temporary pile and frame trestle costing \$50,000 has been constructed two miles north of Oakford, Ill., to replace an open-deck trestle. Original plans for a ballasted-deck pile and frame trestle with three fire protection sections (Railway Age, May 12, page 80) have been deferred until 1953-54.

Chicago, Rock Island & Pacific. -At Fort Worth, Tex., construction of three concrete piers is being undertaken by the Austin Bridge Company (\$100,-000). The Grosshans-Peterson Company is placing riprap bank protection at Pulaski, Ark. (\$57,000). At Kansas City, Mo., the H. H. Fox Construction Company is constructing a 204-ft. by 41-ft. warehouse (\$37,000). Riprap is being placed along the Kaw river at Topeka, Kan., by Miller Brothers (\$35.-000). A total of 11 steel diesel houses are being erected at various locations throughout the system by Harry Pascoe (\$45,000). A 486-ft. concrete retaining wall is being built at Chicago by Wolfes-Jensen Company (\$53,000).

Current contracts let in connection with the main-line relocation from Atlantic, Iowa, to Council Bluffs (last reported by Railway Age, April 14. page 60) include: Three bridges to be built by the Arcole Midwest Company (\$158,000); two bridges by List & Weatherly Construction Co. (\$135,000); and six highway bridges by Alexander & Rapass (\$53,000).



SOME OF THE HOUSING FACILITIES constructed by the National of Mexico for its employees in the new passenger and freight terminals under construction in the Valley of Mexico. This is said to be the first time in the country's railroad history that

provisions have been made for a complete residential zone for railroad workers. The project is to serve as a model for similar developments at major railroad terminals throughout the country. Plans also call for construction of homes for road workers.

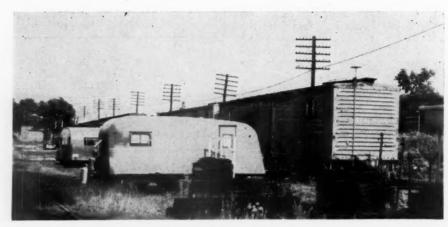
New Orleans Public Belt. - A \$203,000 painting of the Mississippi river bridge is currently under way, and about 20 per cent of the 4.35-mile structure has been coated with aluminum paint. For 1952, work will be confined to the 1.64-mi. east approach. Next year the 2.04 mile west approach will be covered and the main spans-0.67-mile in length—will be covered in 1954 according to plans. The paint gang, working only in warm months, will require about 17,500 gallons of paint for the three-year project. The Belt will employ about 20 men for the job. In addition, the Belt employs a year 'round crew of 30 bridgemen and helpers to chip rust and to spot-paint with red lead and aluminum. The overall paint job is undertaken every five or six years, this being the third time since the \$13,000,000 structure was built.

St. Louis-San Francisco.—Current construction projects authorized, or for which plans have been completed, represent an expenditure of more than \$1 million. They include: Moving of the reclamation plant, rail cropping plant and communication and signal shop from South Springfield, Mo., to Springfield West shops, plus construction of a new dead freight house at South Springfield at a total cost of \$420,000; replacing of North Springfield steam boiler plant with a steam generating system, and modernization of the heating system and various shop buildings at that point at a total cost of \$215,000 installation of spring switches at five separate locations in Arkansas (\$30. 000); construction of a 230-ft. by 51-ft. warehouse building at Oklahoma City, Okla., for use by Acme Fast Freight (\$77,000); rearrangement of trackage at Lindenwood, Mo., to provide single track operation (\$27,000); installation of automatic crossing gates at five intersections in Memphis, Tenn. (\$50.-000); modernization of the freighthouse at Kansas City, Mo. (\$71,000); construction of a concrete underpass at Horine, Mo., to replace a timber structure (\$44,175); and construction of an escalator in the Tulsa (Okla.) Union depot (\$46,413).

FINANCIAL

Central of New Jersey-Central of Pennsylvania. -Consolidation of Pennsylvania. — Consolidation of Operations.—The CofP has asked the I.C.C. for authority to abandon its operations. The road operates approximately 118.9 miles of main line and 104 miles of branch lines in the area between the Pennsylvania-New Jersey state line and Scranton, Pa.

This proposed abandonment is what might be termed "technical," since operation of the Pennsylvania facilities will revert to the CNJ, which operated them from 1871 until 1946. Combining



A NEW NOTE has been added in recent years to gang camp trains - the highway trailer.

the CNJ and CofP into a single operating unit is designed to bring about tax and other savings totaling \$275,000 a year. It was in anticipation of even greater savings that CNJ formed the separate CofP company in 1946, butsubsequent court decisions ruled out those anticipated benefits (Railway Age, August 11, pages 7 and 13).

Illinois Central. -- Relief from Competitive Bidding Requirements.— Division 4 of the I.C.C. has denied this road's application for competitive bidding relief on a proposed \$62,000,-000 bond issue. The division found the road "has not made due showing" for the exemption as required by I.C.C. regulations.

Opposition to the road's application came from the Department of Justice, the Federation for Railway Progress and the banking firm of Halsey, Stuart & Co. Three New York banking houses supported the road. The IC contended, among other things, that present market conditions are unfavorable for railroad bonds, and that bidders are unwilling in an uncertain market to bid the best price at competitive bidding. The division noted the high rating of the proposed bonds, and concluded that nothing in present market conditions is unfavorable for sale of such bonds.

The proposed issue is for \$62,000,000 of consolidated mortgage 30-year bonds, series E. They would be dated August 1, 1952, and mature in 1982. Proceeds from their sale would be used to redeem \$62,107,820 of joint first refunding mortgage bonds scheduled to mature in 1963 (Railway Age, July 28, page 53). An application for authority to actually issue and sell these bonds is still pending before the commission. and is not affected by this denial of competitive bidding relief.

Halsey, Stuart & Co. told the I.C.C. that failure of the IC to obtain a favorable bid on these bonds at competitive bidding would not be harmful to the road's credit position. The F.R.P. argued that the IC application fell short of disclosing adequate grounds for competitive bidding relief.

The Antitrust Division of the Justice Department told the I.C.C. that "no financial urgency" exists for private sale of the proposed IC issue.

Commenting on Division 4's decision, Robert R. Young, chairman of the F.R.P., said denial of the IC application "constitutes a courageous reassertion of the value of the competitive bidding rule.'

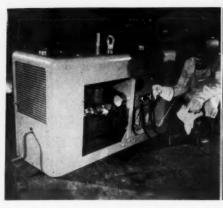
"We hope (the decision) marks a reversal of the recent and up-to-now successful uniform pattern of the railroads, following the self-serving influence of certain New York bankers, to seek exemptions from a rule whose beneficial effects have been fully demonstrated in the past eight years. Constant resort to petitions for exemption, if granted by the I.C.C., could only undermine the rule of competition . . . , Mr. Young declared.
"We hope that railroad management

will henceforth break away from this recent uniform pattern of compliance with the self-serving wishes of this small group of New York bankers," he added.

Long Island. — Reorganization.— The Long Island Transit Authority has filed with the federal court in Brooklyn, N. Y., and the Interstate Commerce Commission, its plan of reorganization for the Long Island. An earlier reorganization plan, filed by the Pennsylvania, was outlined in Railway Age, November 26, 1951, pages 58-60.

The authority's plan would terminate the road's bankruptcy, which began March 2, 1949, through use of powers and tax benefits granted by New York state law. It would give the authority clear title to the railroad and enable the authority to lease or transfer the LI to a corporation controlled by private interests, when such a move becomes practicable. In the meantime, the plan would permit the authority to operate the property through an authority-controlled corporation, directors of which would include representatives of New York City and Nassau and Suffolk counties.

(Continued on page 54)





Engine-Driven Welder

A lightweight, compact engine-driven welder (Type EW-20) is available from the Westinghouse Electric Corporation. Equipped with complete engine accessories and auxiliary apparatus, the new welder also can supply 110-volt, 60-cycle, single-phase power from a conventional plug-in outlet.

Nominal rating of the welder is 200 amp., 40 volts, 60 per cent duty cycle with a current range from 40 to 250 amp., in accordance with N.E.M.A. standards. During off-welding periods, auxiliary power of 3 kw. at 100 per cent power factor or 2 kva. at 80 per cent

power factor are available for lights and power tools. During welding periods about 300 watts auxiliary power is available for lights.

Coupled to a Ford 120, 4-cycle, 4-cylinder water-cooled industrial power unit, the self-excited, compound-wound generator functions both as a d.c. generator and single-phase alternator for auxiliary power. Welding current is controlled in four ranges by a tap switch and shunt field rheostat. The a.c. power circuit includes conventional outlets, a voltmeter, and a breaker with overload protection. For portability, two-wheel running gear suitable for high-speed road towing is available.

either side of the centerline. This assures accurate vertical suspension of the luminaire, which is desirable for proper appearance and essential for operation.

The new Thompson pole-top hanger can be adapted to new standard metal poles by means of a fabricated tenon insert in the top of the pole.

Poles equipped with this disconnecting and lowering device also require a hand-hole, complete with pulley assembly, at the bottom for access to the operating cable. In addition, mast-arms ranging from 2 ft. to 12 ft. in length, in 2-ft. increments, are available for use with the pole-top assembly. When arm length exceeds 8 ft., additional bracing is required; this is furnished by the pole manufacturer. The units are available in single or double arm models.



"Yardlift 150" Improvements

Increased horsepower, lighter weight, and better hydraulic steering have been announced by the Clark Equipment Company, of Battle Creek, Mich., for its improved "Yardlift 150" pneumatic-tired fork-lift truck of 15,000-lb. capacity.

A new power plant develops more horsepower at fewer r.p.m.s, resulting in more work, less wear, and longer engine life. A weight reduction of 2,300 pounds provides increased flotation. Improved hydraulic steering — which can be operated mechanically if the motor stops—makes operation easier for the driver. A pivoted-type steering axle is standard on the new model, permitting constant wheel contact during travel over uneven surfaces.

Increased driver vision has been achieved by narrowing the fork bars vertically, and by increasing the opening between the upright channels and lift cylinders by $3\frac{1}{2}$ inches. The new upright is claimed practically to eliminate possibility of twisting or spreading as a result of heavy, cumbersome loads.



Lighting Fixtures Serviced on the Ground

The Thompson Electric Company, Cleveland, has designed a disconnecting and lowering hanger for use with fixtures mounted on new standard metal poles. The maintenance man works at ground level with a dead fixture (the live contacts stay at pole top), and there are no climbing or electrical hazards. In addition, the fixtures can be serviced with greater frequency and lower cost. The poles are available in various heights.

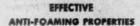
The new unit includes a pole-top fitting complete with self-contained pulley, a divided mast-arm, the stainless steel operating cable, and a mast-arm end fitting. The mast-arm, a high-strength aluminum alloy extrusion, contains a Y-shaped partition for both increased stability, and separation of the movable operating cable from the electrical wiring. Diameter and wall thickness of this arm are comparable to 2-in. extra-heavy pipe.

The mast-arm end fitting, incorporating the Thompson hanger mechanism, features a self-contained "plumbizer" that provides for 8 deg. adjustment

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That's why Gargoyle Diesel oils are unsurpassed in quality!

EXCEPTIONAL DETERGENCY





WAL RESISTANC



FRICTION AND WEAR

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Benchmarks and Yardsticks

THE STANDARD AUTHORITY on the duties of an executive is a work entitled "The Functions of the Executive," by Chester I. Barnard, formerly president of the New Jersey Bell Telephone Co.

It is cooperation, says Mr. Barnard, that gets the work done; but it takes a skilled leader to induce the cooperation. And how does he do it? People have their own individual objectives which are not identical with the objectives of the enterprise they work for. How induce them to subordinate their personal desires to the degree necessary to get them to work effectively for their employer's objectives?

The inducement of the monetary reward—wages—is, of course, one of the means toward this end. But what beyond that? The organization must have a purpose that is generally recognized as harmonious with the purposes of the individuals who compose the organization; and, furthermore, it must be evident that the organization is making progress in attaining its purposes. Defining these purposes and giving evidence that effective steps are being taken to attain them are, then, executive functions which are fundamental. Mr. Barnard calls this "the inculgation of belief in the real existence of a common purpose."

To perform these functions, the executive, in addition to his technical competence, must have responsibility, by which is meant that he can be relied upon to take whatever action his intelligence and his moral standards indicate. No use in knowing what to do, and not doing it.

The author concludes that organizations tend to endure in proportion to the breadth of the morality by which they are directed; and that leadership with low morality (using the term in its broadest sense) cannot last very long.

Evidence of executive effectiveness is not usually direct and tangible—it must be sought in the accumulation of indirect evidence throughout the organization over a period of time. Vitality and progress in an organization don't just happen spontaneously—back of them will be found mind and character, the latter no less than the former.

What we've said about the Barnard book here is a most inadequate reflection of its wealth of content. Too many people suppose that the primary purpose of right conduct is to qualify for a pair of wings in the hereafter—hence is something which it's a little shameful to discuss in he-man company. It is evident, however, from such analyses as that by Mr. Barnard, that reliably moral conduct has a very practical value in making the present agreeable and productive.

J. G. L.





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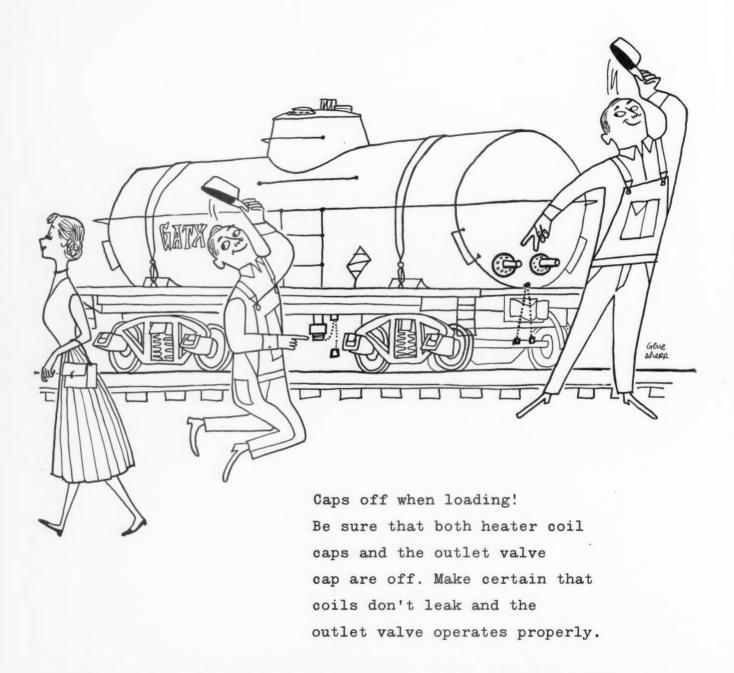


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RAILWAY AGE

HOW COLLECT FOR "STAND-BY" COSTS?

A persistent problem of many businesses is that of contriving means of passing on to customers the concern's "stand-by" costs. The keeper of a general store in a country town, who feels an obligation for community service which induces him to carry products in stock which are seldom called for, incurs a cost per unit in handling such products which is much higher than that of the "supermarket" which doesn't stock anything which doesn't sell quickly.

The problem of the general storekeeper lies in the fact that he doesn't charge anything for his most important service—which is his convenience as a source of supply when people want something in a hurry, and haven't time to drive to the city or send to a mail-order house for it. Instead of charging separately for this "stand-by" service, however, the country merchant usually adds such costs to the prices of his merchandise—thereby assuring that most of his customers will do the bulk of their trading on their trips to the city, where the "supermarkets" do not incur "stand-by" costs, and hence do not add such costs to the prices of their merchandise.

Collecting the costs of "stand-by" service is no problem to a monopoly. Hence, "stand-by" costs were no problem to the country merchant before the day of the mail-order house and the proliferation of automobiles. The railroads didn't have the problem, either, before the development of trucking and other alternative forms of transportation. Their "stand-by" costs were just included in their regular tariff charges, and the customers paid these charges because they had no alternative.

But not any more. Any price now-be it for trans-

portation or almost any other commodity or service—which is weighed down with costs in addition to those directly connected with the production of the commodity or service itself, is likely to drive away the customers for all but a small fraction of their patronage. The railroads, obviously, are facing this problem in acute form—in the constantly increasing number of their patrons who use railroad service only to correct the imbalance in their inbound and outbound movements, or to handle the peak loads that their trucks or barges can't manage. Other agencies of transportation which compete with the railroads are not embarrassed in trying to collect the costs of "stand-by" service, because they don't provide it.

The answer to this troublesome situation would lie in the development of a system of charging for railroad service, whereby the regular user of the railroad capacity placed at his disposal would find few if any "stand-by" costs in his freight bill, while the intermittent user would not get away, as he now does, with transferring his "stand-by" costs to the prices paid by the steady customers. The actual working out of prices like this would be no easy chore, but the electric utilities appear to have succeeded in doing it.

Price-Cost Relation

From the standpoint of sound economics, pricing—especially where competition is a factor—ought to bear some correspondence with actual costs. Only in this way can production be channeled to the low-cost agencies—which is necessary, if national income and general

economic progress are to be maximized. No shipper should be virtually forced into using trucks or barges for a particular movement, when actual railroad costs are much lower, merely because, with its rate in this particular case, the railroad is trying to collect the "stand-by" costs incurred for the benefit of other shippers. The ideal—alike from the standpoint of the railroads, their steady customers, and the general welfare—would be to assess "stand-by" costs upon those for whose benefit such costs are incurred (to the extent, of course, that this goal is attainable).

In the Equipment Industry, Too

This problem, incidentally, while particularly acute in the railroads' case, also occurs in the "feast or famine' railroad equipment business. In today's competitive era -when any business provides a lot of free or below-cost service, and endeavors to recover such costs in the prices of the products it sells-it frequently finds itself at a serious competitive disadvantage with rivals who don't do anything valuable or expensive for nothing, and hence can and do offer more attractive prices for the wares they sell. Lack of realism in pricing policy may, thus, injure or destroy the producer who actually has the "inherent advantage." Patronage doesn't automatically follow costs-instead, it follows prices. Economic behavior, in a competitive market, will occur only if the producer with a cost advantage reflects this cost advantage in his price.

A PROFESSIONAL SOCIETY FOR RAILROAD PUBLIC RELATIONS

There is an active movement afoot among railroad public relations officers to form a professional society—an effort which will doubtless be successful since most of these officers have indicated their favorable opinion. The potentialities for good of such an organization are very great, and all necessary encouragement to the new society should be forthcoming from the industry.

The public relations officers have been meeting together at rather frequent intervals for years—but practically always for the purpose of discussing and giving advice regarding the public relations programs of the Association of American Railroads or the territorial railroad associations. Seldom has any time been scheduled at these meetings for the interchange of information regarding the public relations officers' own problems on their individual railroads. The new association proposes to meet this need—and need it is, of a high order of importance.

Practically all other departmental railway officers have effective organizations for such interchange of information and the consequent advancement of their professional competence and efficiency. The public relations officers would doubtless have had a similar society before this if they hadn't had, at their meetings, so many details of joint public relations programs to discuss that they've just never found time to get into their own individual problems.

Probably most railroad people do not fully realize that formal public relations work has had a longer history and is more highly developed on the railroads than, perhaps, in any other large American industry. Moreover, railroad public relations men generally enjoy a high standing in the field of industrial public relations; and at almost any gathering of such professionals, attendance from the railroads will usually surpass that from any other industry.

The techniques available in this field of endeavor are developing so rapidly that it is almost a full-time job to keep up with them—e.g., highly dependable methods for testing the color and intensity of public or customer or employee opinion, and the "pre-testing" of devices of communication to make sure that they are effective before they are adopted. But most of these new techniques need adaptation before they can be applied in a particular industry—on the railroads, for instance. And interchange of information among railroads on these and many other individual experiences will obviate an expensive duplication of effort, which otherwise cannot be avoided.

The public relations job on a railroad has two aspects—that is, it is an operating job insofar as press contacts and other devices of communication are concerned; and it is, also, and even primarily, a staff job. This follows because a company's standing with the public is more largely determined by the way in which the public gets treated by railroad officers and employees, than by what is printed in the papers about that particular company.

The management which "hires a newspaper man to write press releases"—and then believes its public relations problem is largely taken care of—is quite badly mistaken.

Where the public relations man can render his most valuable service, if he is thoroughly competent and mature, is as an adviser to management and an educator to the entire railroad organization on effective means of deserving and getting public esteem. Since the situation of the railroads in their political and public relations involves the question of the life or death of the industry as private enterprise, there is certainly no railroad job of more vital importance than that of the public relations officer—who, incidentally, has a problem to solve in his effective relations with his own organization as well as that of getting his railroad happily "oriented in its environment."

Public relations men need to be very wise and well informed indeed to discharge their educational and inspirational functions adequately and effectively. Any formal effort on their part to help them further in acquiring the desirable degree of knowledge and wisdom is one which merits the prayerful blessing of their colleagues and their superiors in railway management.



View of the east portal of the completed tunnel gives no inkling of the difficult construction problems encountered.

Old Mine Workings Produce Tough Tunneling Job on the B&O

Construction of double-track tunnel on main line in West Virginia, replacing single-track bore, was slowed by presence of mined-out coal seam

Written exclusively for Railway Age By J. W. PACKMAN*

Built in 1853-55, old Tunnel No. 1, just east of Clarksburg, W. Va., on the main line of the Baltimore & Ohio between the Atlantic seaboard and Cincinnati and St. Louis, served for almost 100 years to carry its fair share of the nation's transportation. Like most things, however, age had weakened it and in addition it was inadequate in size for the modern motive power and rolling stock required for the present-day volume of high-speed traffic. It has now been replaced with a new tunnel which was opened to traffic on June 16.

Gives Improved Line and Grade

The new tunnel is parallel to and 450 ft. south of the old single-track tunnel. Alinement is tangent and extensive track changes were made on both approaches to reduce curvature. The grade of the new tunnel is 0.3 per cent as against 0.67 in the old tunnel. The improvements in line and grade necessitated a tunnel length of 3,236 ft., about 500 ft. longer than the old tunnel. Both the old and new tunnels are approximately 500 ft. below the summit of the hill.

*As project engineer on the construction of the new tunnel, Mr. Packman was directly in charge of the work under G. E. Norris, resident engineer. The design of the new tunnel provides for doubletrack operation on 14-ft. track centers. The tunnel section is a full-centered arch with a vertical clearance on the center line of 28 ft. and a clear horizontal span of 31 ft.

For its entire length the tunnel is constructed with 10-in. steel ribs spaced normally on 2-ft. centers. However, in places where bad roof conditions prevailed, the ribs were placed on 1-ft. centers. Specially designed water-bar liner plates, ½-in. thick, were used to enclose the entire arch above the springing line.

A 22-in. concrete lining for the side walls and roof encases the 10-in. steel ribs throughout the tunnel. On either side of the tunnel, concrete ballast walls confine the 3-ft. depth of stone ballast which supports the tracks. Between each ballast wall and the side of the tunnel is a concrete gutter lined with 18-in. half-round vitrified clay pipe. This gutter lining was made necessary by the corrosive action of acid water draining through 6-in. weep holes spaced every 10 ft. through the tunnel walls.

The work of driving the new tunnel began at the east portal in September 1950 and was completed in May 1952. In the beginning, work and progress went along normally for a tunnel of this size. Two 10-hour shifts were worked daily and progress averaged over 350 ft. per month. The full-face method of driving was used



Timber cribbing was required above the steel ribs for nearly half the distance through the new tunnel after entering an old coalmine area.

Looking back through the crown drift showing square sets ahead of steel ribs. Crown bars and cribbing are above the visible timbers.





Drill jumbo from which the heading crews worked at the east end.

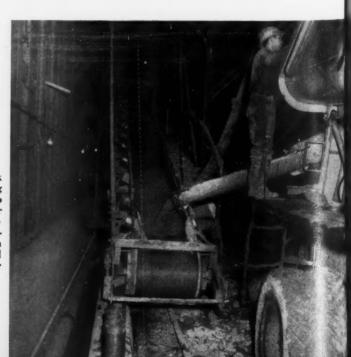






In constructing the lining the Dumpcrete trucks were discharged directly into the ballast wall and gutter forms.

Here a truck is discharging concrete into a conveyor for feeding the Pumpcrete machine which in turn pumped it into the liner forms.



and the placing of the steel ribs and liner plates followed immediately behind the mucking operation.

About midway through the tunnel, progress was very materially slowed when the driving ran into old mine workings in the well known Pittsburgh seam of coal. This 9-ft. seam outcrops above the east portal of the tunnel and dips westwardly to cross the tunnel section and almost meet the tunnel floor at the west portal. The coal had been mined out many years ago and the pillars subsequently removed, permitting the roof to collapse with resultant fragmentation of the overlying strata.

Because of the voids and unstable ground overhead, the full-face method of driving had to be abandoned and recourse was had to the heading-and-bench method. A pilot drift in the crown of the tunnel was carried ahead of the steel ribs for a distance of about 18 ft. and then fanned out to the sides. As progress was made on the pilot drift and fanning-out operation, 12-in. by 12-in. oak crown bars were placed to carry timber cribbing for the support of the broken roof. From the midpoint of the tunnel almost to the west portal, timber cribbing was required in heights from 5 to 15 ft. above the steel ribs. All voids around the timbers were packed with 8-in, crushed limestone. With all crown bars and cribbing in place, enough of the lower bench was then removed to permit erecting an 8-ft. section of steel ribs and liner plates. The work was slow and laborious and for a time progress dropped to less than 100 ft. per month.

Meanwhile, portal excavation at the west end had disclosed badly broken and unstable strata further complicated by the old mine workings just above the new tunnel floor. To protect the portal, it was deemed advisable to open up the west end of the tunnel and bore eastwardly with hand labor until the tunnel section met reasonably stable ground conditions.

Protection from Corrosion

As progress was made in the driving of the tunnel, timber lagging was placed behind the steel ribs below the springing line and the voids behind the lagging were filled with 8-in. crushed limestone to give drainage through the 6-in. weep holes into the tunnel gutters. Because so much of the water came through the old mine workings, it had in places an extremely high sulphur and acid content with an exceptionally corrosive effect on ferrous metals. To protect the steel ribs and liner plates from corrosive action, it was found necessary to spray them with three coats of anti-corrosive mastic paint throughout most of the tunnel.

Mucking at the heading was handled by 2-u. yd. diesel shovels, and the excavated material was hauled from the tunnel in Euclid trucks and Tournarockers. The 22-in. concrete tunnel lining was poured in 40-ft. sections, using a steel liner form mounted on rails. Concrete was mixed at a 2-cu. yd. central mixing plant, hauled to the working area in Dumpcrete trucks and placed in the steel form by a double Pumpcrete machine discharging through an 8-in. line.

Construction of the new tunnel involved 137,000 cu. yd. of excavation and the placing of 28,000 cu. yd. of concrete. The total cost of the entire project was approximately \$5,000,000.

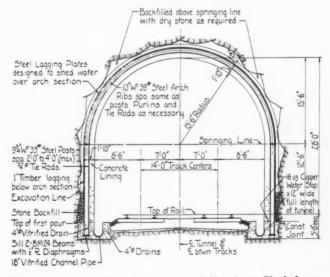
All design work and engineering was done by the engineering department of Baltimore & Ohio with its regular personnel. The construction work was handled by contract with the Keeley Construction Company, Clarksburg, W. Va., for portal excavation and incidental approach grading, and with Bates & Rogers Construction Corp., Chicago, for the tunnel itself.



Steel liner form in place ready for the pouring of another 40-ft. section of the tunnel lining.



Acid water from the old coal mine draining through the 6-in. weep holes in the tunnel lining is carried off by the 18-in. gutters lined with half-round vitrified tile.



Typical cross section of new tunnel No. 1 at Clarksburg.



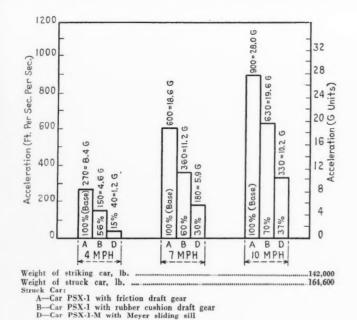
Pullman-Standard inclined track for impacting freight cars at predetermined speeds up to 18 m.p.h.

Can Freight Cars Be Protected Against Higher Impacts?

A review of present status and a discussion of possibilities for improvement with draft gears and cushion underframes combined

What happens to freight-car structures and lading when they are subjected to impact speeds above 4 to 7 m.p.h., within which range lies the limit of capacity of present cushioning devices? In the increasing urge to get cars through yards faster, impact speeds up to 10 m.p.h. or more are no longer uncommon and seem likely to increase in the future. At a symposium dealing with the problems of protection of freight cars and lading against the effects of horizontal impacts, conducted at the semi-annual meeting of the American Society of Mechanical Engineers at Cincinnati in June, these facts were stressed repeatedly. The need for increased protection of the cars against the effect of these high impacts was developed by representatives of draft-gear manufacturers and the carbuilding industry.

J. M. Roehm of the Pullman-Standard Car Manufacturing Company presented experimental data comparing the performance of friction draft gears, the rubbercushion draft gear, and sliding center sill underframes. A. M. Bixby, vice-president of Waugh Equipment Company, described the characteristics and discussed the performance of rubber-cushion draft gear. William K. Durbon of Hulson Company dealt with the development of the Duryea cushion underframe and presented data on the basis of which further developments are planned. N. T. Olsen of Peerless Equipment Company set forth the limitations under which the draft-year designer now operates and suggested possible directions which future developments may take.



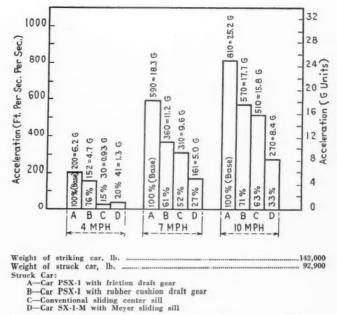
Horizontal impact accelerations of a car which is loaded to its full capacity.

Mr. Roehm pointed out that the mean speed of impact is now 7 m.p.h.; that only 22 per cent of the impacts occur below 5 m.p.h.; and that it is only for impacts occuring below 5 m.p.h. that conventional draft gears afford protection to the car and its lading. He described recent developments in dynamic testing, a program for which was started by Pullman-Standard about four years ago, and the instrumentation by the use of which far more detail information concerning the effect of impacts can be recorded. Following a review of the relationships between force, mass and time in the production of acceleration, momentum and energy, he presented some of the results of the Pullman-Standard test program.

Cushioning Limitations and Possibilities

Experimental data were collected on coupler forces and accelerations with the struck car equipped with friction draft gear, with a rubber-cushion draft gear, with the Duryea sliding center sill, and with the Pullman-Standard rubber-cushion sliding center sills and rubber-cushion draft gear. The bar graph showing the relative effects of the four types of cushioning equipment on coupler forces acting on the car and lading at three speeds is plotted from the data produced in these tests.

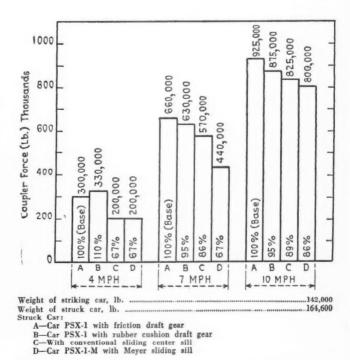
Another bar graph shows the relative effects of three of the four types of cushioning equipment on the horizontal acceleration of the fully loaded car at the same three speeds. At 7 m.p.h. the car body with the friction draft gear is subjected to 18.6 times the acceleration due to gravity (32.2 ft. per sec. per sec.); that with the rubber draft gear to 11.2 times gravity, and that with the Pullman-Standard underframe (the Myers sliding-sill underframe) to 5.9 times gravity. The rubber gear had 95 per cent of the force produced by the friction draft gear, and the Pullman-Standard rubber-cushion underframe had 52 per cent of the force developed by the friction gear. The acceleration of the car body with the rubber-cushion draft gear, however, is only 60 per cent of that with the friction gear and the acceleration of the Pullman-Standard rubber cushion-fitted car is only 30 per cent of that of the car with the friction gear.



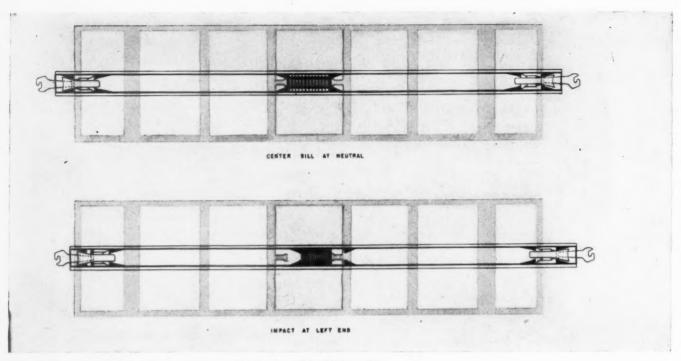
Horizontal impact accelerations of a car loaded to 40 per cent of capacity.

Mr. Roehm also points out that these accelerations do not change appreciably with change in the load. The bar graph of horizontal accelerations with a 40 per cent load in the car shows an acceleration of 18.3 times gravity for the car with the friction draft gear as compared with 18.6 times gravity in a car with a full load. The accelerations for the cars with rubber draft gears are identical for both load conditions and for the Pullman-Standard underframe are five times gravity for the 40 per cent load as compared with 5.9 times gravity for the full load.

The symposium produced evidence that conventional



The relative effects of four cushioning equipments on coupler forces at three speeds.



The Pullman-Standard rubber cushion underframe with sliding sill.

draft gears absorb a very small percentage of the energy—leaving the remainder to be absorbed by the structure and lading—and that the absorption of energy is the principal area in which draft-gear designer and car builder can contribute to the improvement of freight cars.

Severe limitations are placed on what the draft-gear designer can do, since draft-gear travels range from $2^{5}/_{8}$ in. to $3^{1}/_{4}$ in. The absorption of an appreciable amount of energy with such short travel requires a very high force level which may be damaging to the structure and lading. With impact speeds of 5 m.p.h., a speed above which 80 per cent of all impacts occur, then the car builder, in Mr. Roehm's opinion, must employ the principle of the sliding center sill, so that more work can be done at reasonable force levels because of the increased length of travel available.

The Pullman-Standard rubber-cushion underframe with sliding sills was represented as the best of several designs of freight-car cushioning devices developed and tested by Pullman-Standard over the past few years. The car is arranged so that the center sill slides relative to the underframe and is connected to the car body through rubber pads, providing a total travel of the sill of approximately 7 in. under an impact speed of 13 m.p.h. with a fully loaded car. This gear never goes solid against metal but continues to compress the rubber. Conventional draft gears are used at each end of the center sill in addition to the cushioning between the sliding center sill and the car body. This protects the center sill, itself, and provides additional cushioning of the car and its lading. The cushioning capacity is in excess of 120,000 ft. lb.

Use of the rubber-cushion underframe with sliding center sills also reduces vertical accelerations of the car body. The maximum acceleration for the standard car construction is about 138 ft. per sec., per sec., whereas for the sliding sill the maximum acceleration is 55 ft. per sec. per sec.

As long as free slack in a train limits draft-gear travel, Mr. Roehm considers that future trends will have to be along the lines of the sliding center-sill car. There is also the possibility that hydraulics may enter the picture again, although it has been tried unsuccessfully from the day of George Westinghouse. Its theoretical advantage is the maintenance of a constant force level throughout any given length of travel.

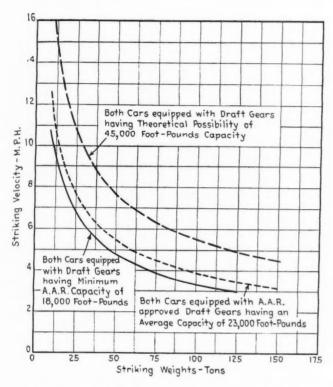
The Rubber Cushion Gear

Mr. Bixby traced the development of rubber draft gear from 1929, first in passenger service and then, in June 1940, in freight service, when five car sets of Twin-Cushion freight type draft gears were applied to General American stock cars,

The Twin Cushions in one of these stock cars have been periodically checktested by the Association of American Railroads under the 27,000-lb, hammer at the draftgear laboratory at Purdue University. After nearly one year of service a 5.75-in, free fall of the 27,000-lb, tup produced a capacity of 18,760 ft, lb. After four years of service and approximately 250,000 miles, the same tup fall produced 19,912 ft, lb. capacity. After eight years of service and more than 500,000 car-miles, the same tup fall produced 19,238 ft, lb. capacity. The gears are still in service and are scheduled for another check test this year, after 12 years of service.

In a check to determine the effect of extended periods of inactivity on the resilient properties of rubber, the A.A.R. found the capacity of the gear under a 5.25-in. tup fall was 18,100 ft. lb. as compared with a capacity of 18,200 ft. lb. for the new rubber, this gear having been stored seven years in the A.A.R. laboratory, but subjected to a monthly laboratory calibration under the drop hammer throughout the period. During this period the draft gear accumulated a total energy input of 9,304,000 ft. lb.

Another A.A.R. test to determine the effect of inactivity in combination with normal weather conditions showed that after two years of inactivity under exposure conditions simulating that of a car stored on a siding a 5.5-in. free tup fall developed a capacity of 18,700



Safe impact velocities for cars of various weights with draft gears of 18,000, 23,000 and 45,000 ft.-lb. capacity.

ft. lb. which was precisely the same as that developed at the beginning of the test.

Mr. Bixby also referred to the development of synthetic rubber for Twin Cushions during World War II which he said has shown no change of capacity after more than five years of service. He described the results of low-temperature tests for brittleness of a new natural rubber compound in which it passed the minus 40 deg. and minus 70 deg. F. brittleness requirements and developed a lowest non-failure temperature of 75.4 deg. F.

In 1948 a series of impact tests were conducted with a 70-ton hopper car by a car builder to determine the stresses in various structural members. Gages were located at fifty stress points throughout the car. The same car was equipped with Twin Cushions and a friction draft gear certified by the A.A.R. It was loaded to a rail weight of 204,460 lb. Impacts were made up to speeds of 14 m.p.h. for the Twin Cushion and 12.3 m.p.h. for the friction gear.

Stresses in all members of the car structure were relatively low at impact speeds up to closure. They remained under the proportion limit under impact up to 9 m.p.h. for the friction gear. Beyond this speed the rubber showed stress reductions of 40 per cent in the center sill, 66 per cent in the bolster cover plate, 20 per cent in the diagonal brace, and 43 per cent in the end sheet.

Duryea Sliding-Sill Underframe

Mr. Durbon reviewed briefly the history of the cushionunderframe cars initially brought out in 1927 by the Duryea Corporation, which was merged with the Hulson Company early in 1950. At that time a program was undertaken to investigate cushioning capacity required of cushion-underframe cars, coupler and body forces due to switching impacts, and static and dynamic laboratory testing of troublesome details, primarily of welded connections. Tests were made at the impact testing plant of the Symington-Gould Corporation in June 1951 on two fully loaded box cars of the single-spring design with a rail weight of 169,000 lb. The struck car was equipped with the electric coupler dynamometer. Velocity of impacts from two to 10.25 miles per hour were measured by the track chronograph. Two-way ride recorders were installed on the side sills near the bolster at the struck ends of the cars.

Three series of tests were conducted. In the first, one test car was impacted into a second. Both cars were equipped with Waughmat cushions and were free to roll away. In the second series the test car was backed up with three cars. In the third, the Waughmat cushions were removed and all but 3/4 in. slack taken up, making it equivalent to a standard single-spring Duryea car, and the first test repeated.

For over-solid blows the forces obtained at the coupler were in reasonable agreement with those obtained statically for the Duryea system. For impact speeds up to 5 m.p.h. the largest peak forces were 100,000 lb. These rose to about 775,000 lb. at 10.25 m.p.h. for cars equipped with the Waughmat cushions. Without the Waughmats the same force was reached at about 9 m.p.h. The initial coupler force due to the inertia of the sill plus that required to overcome friction is substantially reduced by the Waughmat application. The greatest draft forces or tension on the coupler due to recoil were in the order of 100,000 lb. maximum and, therefore, of little consequence.

In both cases shocks as shown by impact registers did not reach zone 3, considered by many railroad men to be the beginning of the rough handling zone, until a coupling speed of about 7 m.p.h. was reached.

The Depew tests of June 1951 clearly indicated that capacities of test cars were inadequate to provide proper protection at coupling speeds of over 7 m.p.h.

Mr. Durbon explained that studies during the past year indicate that capacities of 200,000 ft. lb. or more required to provide a margin of safety above the 7-m.p.h. limit are not only reasonable but mechanically feasible.

Soundly engineered improvement in longitudinal capacity, he said, provides a new means for the railroads to compete with other forms of transportation. Present yard schedules can be maintained, while damage to lading by impact can be controlled. The problem now is not mechanical but rather one of economics.

Friction Draft Gears

The case for metallic friction draft gears was presented by Mr. Olsen, vice-president of Peerless Equipment Company.

The present A.A.R. requirements for draft-gear dimensions were determined by existing standards of car construction that at the time of adoption had been in effect for about 26 years, he pointed out. These standards had also more or less influence on the limit set for draft-gear travel, although in choosing these limits consideration was given to capacity that could be secured without exceeding a safe maximum pressure.

A change in draft-gear pocket design—that is, more space in which to build the gear—is not impossible. However, such requests have never met with favorable reception. A change of fundamental dimensions should not be made too hastily, in his opinion, but should be carefully analyzed so that it can be decided if such changes will encourage real improvement in design over the enormous number of approved friction gears now in service.

Several friction draft gears have been produced hav-



A.A.R. draft-gear test laboratory, one of several equipped with 27,000-lb. hammers.

ing travel up to 4 in., he remarked, calling attention also to the selective-travel gear incorporating a long travel in buff and a short travel in pull. Road tests with this draft gear, however, did not indicate any outstanding advantage occurring from this greater buff capacity when it came to reducing shocks incident to stopping trains under severe brake applications. The extra buff travel apparently created greater slack action in the

The present-day minimum A.A.R. requirement for capacity of a draft gear is 18,000 ft. lb. There are currently nine fully approved draft gears that have met requirements of the A.A.R. specifications. Their average capacity is approximately 23,000 ft. lb. Utilizing the present maximum gear travel of 23/4 in. and a reaction starting at zero and building up in a straight diagonal line to 400,000 lb., which Mr. Olsen accepts as a safe value for modern car construction, it is theoretically possible to secure about 45,000 ft. lb. capacity in a draft gear. If a draft gear could be produced economically to meet such conditions, and also retain other desirable characteristics, such as freedom from sticking, low recoil, satisfactory endurance, sturdiness, and life, a considerable increase in car protection would be afforded.

From the curves showing safe impact velocities for cars of various weights and draft-gear capacities, Mr. Olsen showed that for a striking weight of 50 tons the safe colliding speed for 18,000-ft. lb. capacity gears is 4.82 m.p.h.; for 23,000-ft. lb. capacity gears, 5.42 m.p.h.; and for the theoretical 45,000-ft. lb. capacity, 7.61 m.p.h. The latter speed is an increase of 40.3 per cent over the

average of the presently approved nine draft gears.

Just recently the U. S. Navy requested quotations on friction draft gears, specifying that manufacturers guarantee that no damage to car structure or contained parts

will result in impact speeds at 10 m.p.h. for a special type car weighing about 86 tons. Checking the curves for a car of such weight indicates that the present average approved draft gears will safely take impacts at about 4.25 m.p.h. or approximately 42.5 per cent of that requested by the Navy.

Draft gears could easily be designed that would afford protection at higher impact speeds in classification yards, said Mr. Olsen, but then their protective value in train operation would be less because of their stiffer action. It is generally believed that the majority of the damage to car and lading occurs in the classification yard due to impact speeds beyond the capacity of the friction draft gear, but he thought it entirely possible there may be even more damage in train operation if the draft gears are too stiff for such service. At least, impact speeds in a classification yard can be controlled somewhat, but to control the action in train operation is very difficult.

Energy Absorption

A draft gear's ability to absorb energy depends on the forces developed and the distance through which these forces are permitted to act. Conversely, for a given energy absorption the average forces vary inversely as the amount of relative motion between the acting bodies during impact. Mr. Olsen observed then that, as long as draft-gear manufacturers are limited to the present travel of $2\frac{3}{4}$ in. and must keep forces developed during impact at a minimum, future improvements in metallic friction draft gears will lie in better distribution of the force of impact throughout the draft-gear cycle. He then reviewed the advances in the art of measuring rapidly changing forces made during World War II. He told of the test sponsored by one draft-gear manufacturer for the purpose of adapting them to draft-gear testing and described the equipment and methods which were employed.

"It is quite possible," he said, "that a very simple

and highly accurate method of determining forces set up in a draft gear during closure will be developed, and then the designer will be better able to determine the force-closure characteristics of a gear which in all probability will result in draft gears of higher capacity while still retaining low terminal forces and other desirable

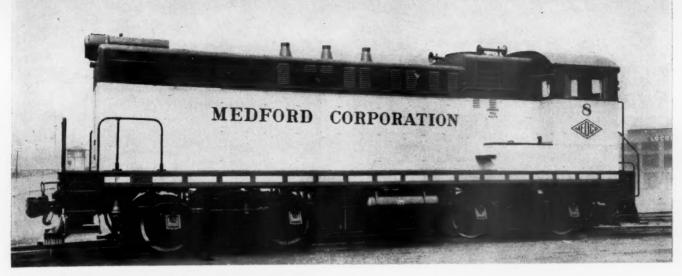
characteristics.

Insufficient Draft-Gear Knowledge

Still another factor that has greatly handicapped the draft-gear designer, he continued, is the lack of sufficient knowledge concerning the work required of a draft gear in modern train operation and its relation to laboratory characteristics of a draft gear. For instance, the presence of rust, on the friction surfaces, so common in actual service and absent in a laboratory, tends to reduce the coefficient of friction between the sliding surfaces which, in itself, will tend to smooth out gear action. Then, again, due to the resiliency of the car structure, forces set up during draft-gear closure may be considerably less under actual service conditions than in the laboratory.

Before any correlation between laboratory and service performance of a draft gear could be made, an extensive series of tests, both laboratory and service, would have to be made using all of the modern testing equipment available, Mr. Olsen declared. Such a program would be rather expensive and require careful analysis to draw any satisfactory conclusions. However, if the desired information could be obtained from such a test, its aid to draft-gear designers would be invaluable in their

efforts to further develop draft gears.



Baldwin-Lima-Hamilton diesel-electric logging locomotive fitted with dynamic braking to reduce heavy maintenance on train brake shoes and wheels.

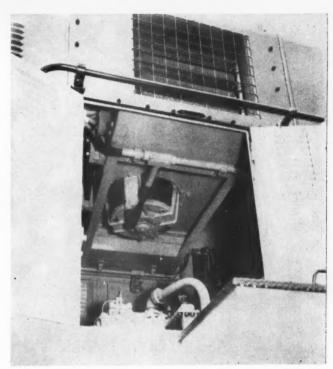
Dynamic Braking For Logging Trains

To realize savings in car-wheel and brake-shoe maintenance, the Baldwin-Lima-Hamilton Corporation recently applied dynamic braking to a diesel-electric yard switching locomotive. Equipped with packaged dynamic braking facilities, the switcher has been delivered to the Medford Corporation for service in lumbering operations at Medford, Ore.

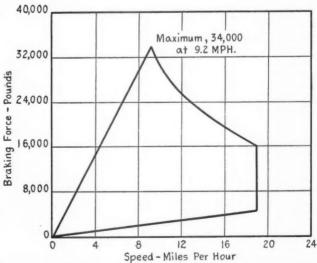
The locomotive is a Model S-3, 100-ton, 2-truck, 4-axle unit powered by a Model 606, 6-cylinder, 4-cycle, 800-hp., solid-injection, normally aspirated diesel engine, direct-connected to its generator which feeds the four traction motors. The switcher incorporates Baldwin's pneumatic speed control which has no transition points; i.e., traction motors remain permanently connected in the electrical circuit. Locomotive speed is regulated by traction-motor field shunting and engine governor adjustment through a pneumatic throttle.

The dynamic braking system consists of a 35-hp. motor-driven fan together with a bank of resistors, totaling one ohm for each pair of traction motors, and the necessary electrical control. The complete, demountable package, except for wiring leads, is mounted in the engine compartment just forward of the cab and electrical control cabinet. Cooling air enters side openings in the hood, passes over the resistors and leaves through the roof.

The total weight of the locomotive is 205,000 lb. (51,-250 lb. per axle) and it has a starting tractive force of 51,250 lb. at 25 per cent adhesion. Continuous tractive force, with its 14:68 gear ratio, is 34,000 lb. at 6.8 m.p.h.



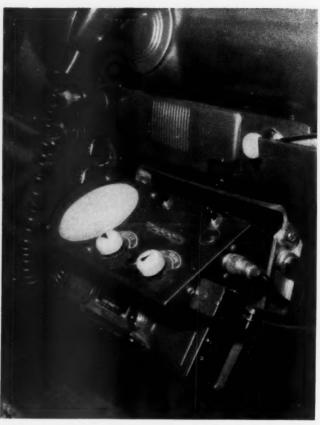
The packaged dynamic braking equipment installed on the Model S-8 yard switcher is mounted inside the engine hood directly above the air compressor and ahead of the electrical control cabinet. Cooling air intake for resistors is above the open doorway.



Dynamic braking envelope for a Type S-8, 800-hp. dieselelectric locomotive. Gear ratio 14:68; diameter of wheels 40 in.; one No. 480 generator; four No. 362 motors.



W. E. Simpson, supervising construction engineer, uses the radio in his automobile.



Direct-control radio can be readily installed in, or removed from, an automobile.

On the Rock Island . . .

How Radio Aids Construction Forces

Building 34 miles of new line is being expedited by two-way direct radio communication between resident engineers, supervisory construction engineer, inspectors and survey parties

By H. T. SAGERT Radio-Communications Engineer Chicago, Rock Island & Pacific

Radio communication between field forces has coordinated the program of constructing a 34-mile section of new single-track main line to replace the Rock Island's existing route between Atlantic, Iowa, and Council Bluffs. This \$8,000,000 project will eliminate about 10 miles of curved track, and will result in lower grades, thus producing a shorter, faster route for the "Rocky Mountain" and "Corn Belt Rockets" between Denver-Omaha-Chicago, as well as for numerous "Rocket" freights.

cago, as well as for numerous "Rocket" freights.

This undertaking, which will require about two years to complete, includes the movement of nearly 7,000,000 cu. yd. of earth. The project is divided into three sections, each under the supervision of a resident engineer:

L. Q. Hill, on the east section, with headquarters at Atlantic; K. E. Gregory, on the center section, at Hancock; and H. E. Strate, on the west section, at Council Bluffs.

The supervising construction engineer is W. E. Simpson. As one of the final phases of the project, a pole line will be constructed on the new right-of-way. In the meantime, direct communication was needed urgently in this construction area. Therefore, as a new idea, radio communication facilities were installed for service dur-

ing the two-year construction period.

Transmitter-receiver base radio stations were installed at the headquarters of the three resident engineers. Automobiles used by the three resident engineers and the supervisory construction engineer were equipped with transmitter-receiver radio. Also, portable handy-talkie sets were available to inspectors and survey parties.

By means of this radio equipment, calls are being made between the offices of the three resident engineers; between these offices and the four automobiles in the respective territories; between the automobiles, within range; and between the handy-talkie sets and the fixed or mobile stations, as well as between handy-talkie sets. This flexible means of communication is being used effectively many times each day to coordinate the work of the engineering and construction forces. Bridge inspectors use the handy-talkie sets to maintain hourly contact with one of the fixed stations, or the automobile used by a resident engineer. Handy-talkie sets are used by instrumentmen to talk to rodmen to tell them when they have the sights desired, or of other movements to be made on long sightings where rodmen might not be certain of hand signals.

As in other applications of radio on railroads, the numerous intangibles are proving to be sources of additional savings. These savings, plus those more apparent, all add up to smoother, more closely coordinated thinking and action throughout this project. The total savings offset a major portion, if not all, of the cost of the radio. When the project is completed, the radio equipment can be used on future similar jobs, or can be utilized as part of permanent radio train communication systems.

Cost of Radio

All of the radios operate on the same frequency, 161.61 m.c., the same as that used in train and yard communication on the Rock Island. The four automobiles are equipped with Motorola dispatcher-type radio sets, each such installation costing about \$450. These are complete units, which require no cable under the car; therefore, the sets can be removed easily and installed on other automobiles. The antennas on these cars are the standard roof-type whips. The handy-talkie portable sets cost \$325 each, but those used on this project are borrowed, as needed, from the Rock Island end-to-end train radio system.

The three base radio stations cost about \$900 each. These stations include 20-watt, 110-volt a.c. Raytheon Model UM 20-1 transmitter-receiver-power supply units, which are retired equipment formerly used in yard and terminal communications service.

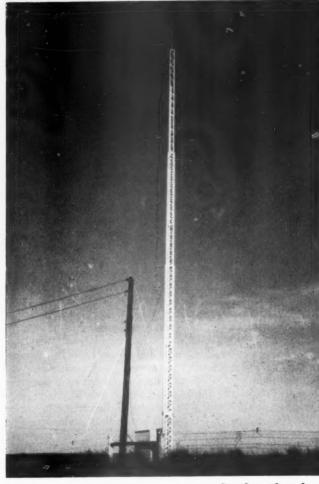
Portable Antenna Towers

The three offices are at low elevation with respect to surrounding terrain, which is a disadvantage for radio operations. A high elevation, one mile east of Hancock, was chosen as the site for the radio controlled from Hancock. A 70-ft. Alprodco collapsible erect-tower was installed for the antenna. This tower consists of three sections, two of which telescope in the base section which is 26 ft. long. With the base section erected, the other two sections are extended by operating a crank. This type of tower was chosen, in lieu of a heavy wood pole of equal cost, because the collapsible tower can be erected and taken down without requiring the use of cranes.

At Atlantic, the 70-ft. structural steel tower is of the sectional type, which was assembled full length on the ground, and then raised, with block and tackle, to stand alongside an existing line pole, being lashed thereto. When this construction project is completed, these towers can easily be taken down and used on other railroad engineering communications jobs, and, in the meantime, can be used in the Rock Island's emergency radio program, which has already served well during several pole-line prostrations. These radio installations were made under the supervision of C. O. Ellis, superintendent of communications of the Rock Island.



Engineering field office at Atlantic was in this car equipped with radio.



Crank-up type antenna tower was erected and can be taken down without the use of a crane.



Summary punch is used to prepare voucher checks.



Vendor's code number is applied to invoices.

How the Illinois Central Handles Material Purchase Vouchers

Written especially for Railway Age
By G. M. CRAIG
General Auditor*

The payment of invoices covering the purchase of materials and supplies was placed on punch card equipment by the Illinois Central beginning with invoices received for September 1950. Prior to that time, vouchers in payment of material purchase invoices were prepared in the office of the general purchasing agent and forwarded to the auditor of disbursements for audit and recording in the accounts. This operation involved some duplication in verification of invoices and in checking and processing vouchers. The mechanization of the voucher payment procedures was another step toward complete mechanization of accounting department operations. This step was taken in order to cut costs and to place the full responsibility for audit procedures in the accounting department.

Since the purchase of material and the preparation of purchase contracts is the responsibility of the general purchasing agent, all invoices, under present procedure, are sent to his office. There they are checked against purchase orders to see that all necessary information is shown thereon, such as purchase order number, cash discount provisions, f.o.b. point and transportation allowances. Such bills also are checked for quantity, price, and fulfillment of shipping instructions. The dates of receipt and transmittal to the auditor of disbursements are perforated into the invoices, and the purchase commodity code also is indicated.

The responsibility for verifying invoice information,

i.e., the calculation and deduction of cash discounts, and the deduction of transportation charges where necessary, rests with the accounting department. The checking of vendor's monthly statements and related correspondence also is handled by that department.

After invoices are received and checked by the purchasing department, they are forwarded, in duplicate, to the auditor of disbursements, separated between those subject to cash discount and non-discounts. In the accounting department they are first sorted in alphabetical order. This sort is made in order to place all the invoices from the same vendor together, which makes for efficiency in the (later) calculating procedure and the coding of invoices. After the sort, the calculations are verified and discounts figured and deducted by comptometer operators. (Transportation charges are not deducted at this point.) Errors in calculations are corrected on the bills, and a notice of such changes or corrections is sent to the vendor.

The next step is the coding of the invoices. A vendor's code index is maintained which provides a code number for every supplier who is considered a possible account. Numbers are assigned for new accounts as needed. For easy reference, the index is maintained in alphabetical as well as numerical order. The actual coding consists of filling out a code slip (Fig. 3) showing the vendor's code number, purchasing agent's commodity code number, material class, order number, invoice date, invoice number, storehouse jurisdiction code number, and month and year in which the voucher will be included in the

^{*}When Mr. Craig began preparing this article he was auditor of disburse-

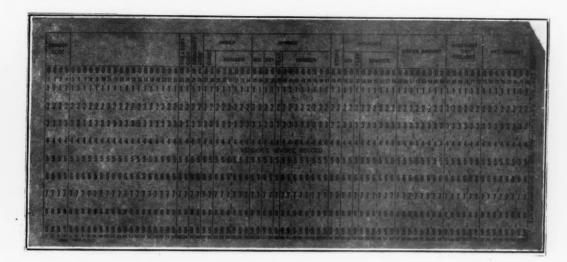


Fig. 1. Invoice card.

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Fig. 2. Vendor's name and address card.

KETPONC	PROCESSING
VENDOR CODE	
TREASURER CODE	
P.A.COMMODITY CODE	
CLASS - ORDER NUMBER	
INVOICE DATE	
NVOICE NUMBER	
TOREHOUSE CODE	

Fig. 3. The code slip.

accounts. A separate slip is made for each invoice and is attached to the original bill by a gummed edge.

At this point there is a different handling for invoices subject to cash discount and those on which no discount is involved. Amounts shown on bills subject to discount are listed on an adding machine tape, which serves as a control of the amounts key-punched into invoice cards (Fig. 1), from which vouchers are made. Voucher numbers are assigned to the invoices, with not more than eight invoices from the same vendor for each voucher. (The limitation of eight invoices per voucher is due to the design of the voucher form. Experience has proved the adequacy of the form.) Invoices are then given to key punch operators, and all the information shown on the code slip is punched into the cards. Invoice cards then are processed on a verifier to check the original punching.

Once the verification process has been completed cards are put through an interpreter which prints the vendor's code number, the voucher number and the amount along the top edge of the card. This printed information is necessary for the next operation, which is to pull the vendor's name and address cards (Fig. 2) from a master file and match them with the invoice cards, for the preparation of the vouchers. This is a manual operation.

At this point, the voucher (Fig. 4) and the voucher register (Fig. 6) are made, by running the vendor's name and address cards and the invoice cards through a tabulator. The vouchers, which are punch cards with an attached detail stub, are produced first. The detail stub provides for the invoice date, the vendor's invoice number, the gross amount, the freight or discount de-

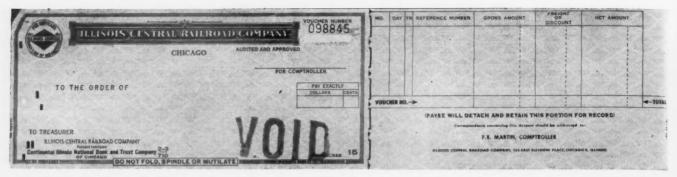


Fig. 4. Voucher and attached detail stub.

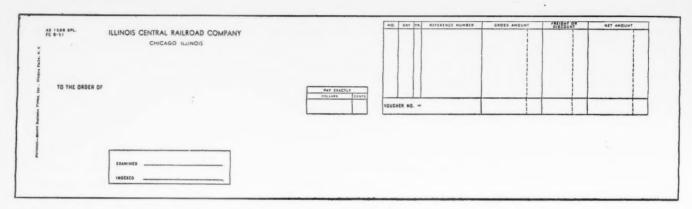


Fig. 5. Record copy of the voucher.

duction, and the net amount of each invoice included. It also shows the voucher number and the totals for the money columns. (Voucher forms are prenumbered and prepunched with the same number for control purposes.) The invoice cards then are punched with the assigned voucher number. (By using a prepunched voucher form, the individual bills are controlled to each voucher by that number.) The voucher also is punched with the month, year and amount of the voucher by the use of a master card. This information is taken from a summary card when the voucher is made.

Next, the record copy of the voucher (Fig. 5) is prepared. This is a fanfold continuous form, ruled and spaced the same as the pay voucher. To these record copies then are attached the paid invoices for filing in voucher number order.

Following the making of the record copy, the voucher register (in triplicate) is produced by running the vouchers through a tabulator. The original of this document is kept by the auditor of disbursements, the duplicate is used as a transmittal sheet for vouchers sent to the treasurer, who uses it also as a record of vouchers mailed, while the third copy is given to the general purchasing agent as information. After the vouchers and the register sheets covering invoices subject to cash discount have been run, the invoice cards used to prepare them are placed in a suspense file.

The vouchers then are checked to make sure that the proper vendor is being paid and that all the invoices are listed and included. This is a manual process. In the case of discounted invoices the voucher number and the month and year are stamped on all copies to safeguard against duplicate payments that might result from subsequent handling and to assist in filing when invoices have been processed completely. Bills are paid before any verification of the receipt of material or of freight charges which are to be recovered, and the total amount of such vouchers issued is carried in suspense.

District accountants are the next persons to handle the invoices. Bills are checked against receiving records, and bills are made for the recovery of transportation charges if necessary. Meanwhile, the record copies of vouchers for payment of discounted invoices are filed in suspense in the disbursement office until the invoices have been processed by the district accountants and are returned to the auditor of disbursements.

At this time the suspense account is cleared and the material and supplies account is charged with the value of the material received. The clearing of the suspense account is accomplished by pulling the invoice cards for the paid discounted invoices from the suspense file of bills that have been processed completely by the district accountant and returned to the auditor of disbursements. (This is another manual process.) The cards representing the completely processed paid invoices are used to accumulate the amounts to be charged to material and supplies and to run the detail statement of such charges. The cards remaining in the open discount or suspense file are used to run a detail list to support the balance remaining in the general ledger account, "purchasing agent's invoices discounted."

After this accounting procedure has been completed, the record copies of vouchers for such invoices as have been processed completely are taken from the suspense file, and the invoices are attached to them and sent to file.

In cases where some invoices remain outstanding, the record vouchers together with the invoices returned again are placed in suspense. No vouchers are filed until all invoices pertaining to the voucher are attached.

The handling of non-discount invoices is different from the procedure described above in that, after calculations have been verified, the invoices are sent to the district accountants instead of to the key punch operators. The district office then does the checking for receipt of material and the processing described for the



Calculating and deducting cash discounts in the accounting department.

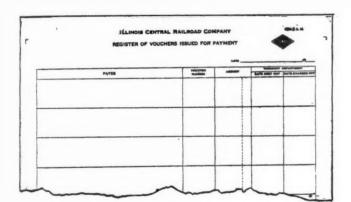


Fig. 6. The voucher register.

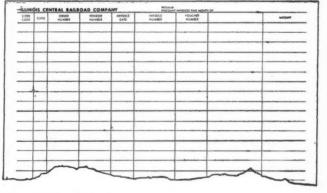


Fig. 7. Detail of charges.

discount invoices. However, since these invoices have not been vouchered, any transportation charges to be assumed by the vendor are deducted from the amount of the invoices. The processed invoices then are returned to the auditor of disbursements, and the same procedures are in effect as for discount invoices, to the point of checking the vouchers. When non-discount invoices are vouchered, they are ready for file, so the invoices are attached to the record or file copy of the voucher at that time.

After both discount and non-discount vouchers have been checked against invoices, the vouchers are posted to individual vendor account cards. Pay vouchers are then certified as being correct by the auditor of disbursements, and together with a copy of the voucher register they are delivered to the treasurer for a signature and mailing.

Mechanization has simplified the preparation of several statements made by the auditor of disbursements. One use of the cards is to prepare a detail of the charges (Fig. 7) to the materials and supplies account. This is made separately for paid discount invoices taken into account when receipt of material has been established,

and for non-discount invoices which are taken into the material account at the time they are vouchered. The statement is made in triplicate and shows the storehouse jurisdiction code number, class of material, vendor code number, order number, invoice date and number, the voucher number and the amount. The statement is made by storehouse jurisdiction and by material classes for each storehouse. One copy is retained as a detail of charges to material and supplies by the auditor of disbursements, one copy is given to the district accountant to support the charges to material and supplies account, and the third copy is given to each interested district storekeeper for his use.

Another statement made from the machine cards is a quarterly cumulative, alphabetical statement of purchases from individual vendors. On this one operation there is a substantial saving compared with the previous manual preparation.

Mechanized records also are used to great advantage in balancing the outstanding vouchers. Since the pay vouchers have the month, year and amount punched into them, sorting is a machine job, and a list of unpaid vouchers is easily obtained.

Selected Income and Balance-Sheet Items of Class I Steam Railways in the United States

Compiled from 126 reports (Form IBS) representing 130 steam railways#

(Switching and Terminal Companies Not Included)

United States

		Uni	ted States	
Income items	For the mo	nth of May 1951	For the fiv 1952	e months of 1951
1. Net railway operating income	\$82,970,256	\$76,717,337	\$373,798,183	\$329,174,180
2. Other income	15,161,384	15,538,046	83,050,791	89,708,875
3 Total income	98,131,640	92,255,383	456,848,974	418,883,055
4. Miscellaneous deductions from		0 (0130	00 050 500	05 400 415
income	3,887,315	3,684,107	20,852,709	25,488,417
Income available for fixed charges	94,244,325	88,571,276	435,996,265	393,394,638
6. Fixed charges: 6-01. Rent for leased roads and				
equipment	10,838,304	9,209,551	50,647,057	47,200,214
6-02. Interest deductions ¹	25,929,236	24,860,502	129,161,140	123,994,412
6-03. Amortization of discount on				
funded debt	242,096	239,871	1,199,737	1,152,405
6-04. Total fixed charges	37,009,636	34,309,924	181,007,934	172,347,031 221.047.607
7. Income after fixed charges	57,234,689	54,261,352	254,988,331 14,556,351	15,370,731
8. Other deductions	2,892,194 54,342,495	3,166,298 $51,095,054$	240,431,980	205,676,876
9. Net income	34,342,473	31,090,004	210,101,500	200,010,010
Equipment)	40,234,661	38,205,192	197,416,556	190,288,782
11. Amortization of defense projects				
12. Federal income taxes	42,434,800	49,361,180	234,762,847	214,903,756
13. Dividend appropriations:		00 1/1 /50	04 177 200	90,986,899
13-01. On common stock	28,356,475	28,161,650 8,442,500	94,177,302 38,514,436	55,105,757
13-02. On preferred stock Ratio of income to fixed charges	8,361,350	0,442,500	30,317,730	00,100,101
(Item 5 ÷6—04)	2.55	2.58	2.41	2.28
(1011 0 . 0 07)	2.00			_
			United	
			Balance at the	e end of May 1951
Selected Expenditure and Asset Items				
17. Expenditures (gross) for additions and bet	terments—Road	1	\$140,149,971 460,472,762	\$120,541,769 400,092,292
18. Expenditures (gross) for additions and bett	terments—Equi	ment	460,472,702	400,092,292
19. Investments in stocks, bonds, etc., other panies (Total, Account 707)			477,586,135	474,362,978
20. Other unadjusted debits			84,397,499	117,473,467
21. Cash			831,695,426	117,473,467 842,324,956
22. Temporary cash investments			858,999,100	929.910.535
23. Special deposits			69,024,764	110,457,176
24. Loans and bills receivable			1,293,899 55,370,821	1,714,996 57,260,474
25. Traffic and car-service balances—Dr			168,642,585	165,095,739
26. Net balance receivable from agents and co 27. Miscellaneous accounts receivable	nauctors		469,457,475	475,003,382
28. Materials and supplies			920,561,267	860,066,202
29. Interest and dividends receivable			19,680,611	18,577,712
30. Accrued accounts receivable			226,899,433	229,882,213
31. Other current assets			35,202,514	36,374,039
00 77 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			3,656,827,895	3,726,667,424
32. Total current assets (items 21 to 31).			3,030,021,093	3,120,001,727
Selected Liability Items				
40. Funded debt maturing within 6 months2			\$176,855,195	\$147,556,291
Al Loons and hills navable			3,168,860	5,237,500
42. Traffic and car-service balances—Cr			95,616,823	97,836,885 599,476,259
43. Audited accounts and wages payable			531,111,644 195,044,175	215,905,950
44. Miscellaneous accounts payable			32,479,193	28,922,841
46. Dividends matured unpaid			9,285,711	9,674,561
47. Unmatured interest accrued			75.207.398	73,055,407
48. Unmatured dividends declared			57,587,021	55,690,172
49. Accrued accounts payable			303,881,233	235,074,064 914,344,638
50. Taxes accrued			915,976,491 85,172,426	914,344,638 86,709,559
51. Other current liabilities			00,112,720	
52. Total current liabilities (items 41 to 5	1)		2,304,530,975	2,321,927,836
53. Analysis of taxes accrued:			740 074 743	740 000 700
53-01. U. S. Government taxes			740,074,741 175,901,750	748,089,788 166,254,850
53-02. Other than U. S. Government ta 54. Other unadjusted credits	AUS		272,350,979	292,400,810
51. Onici dilaujusicu cicutis			_1=,000,717	_,=,100,010

*Excludes Colorado & Wyoming Ry. Co. which filed no report because of steel strike.

Represents accruals, including the amount in default.

Includes payments of principal of long-term debt (other than long-term debt in default) which becomes due within six months after close of month of report.

Includes obligations which mature not more than one year after date of issue.

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission.

Subject to revision.

(Continued from page 18)

The plan proposes, as authorized by state law, to fund back taxes, unless they can be compromised, over a period of 20 years at 3 per cent simple interest with no penalties. Also proposed is issuance to the PRR of \$20,000,000 of 20-year 3 per cent authority bonds secured by a first mortgage on the LI's Bay Ridge branch and an assignment of all amounts payable by the New York Connecting for trackage rights over the branch. The PRR also would be given an option to acquire the branch, at any time during the life of the bonds, for an amount equal to the bonds then outstanding.

Walter S. Franklin, PRR president, commenting on the authority's proposal, said it "is not a plan for reorganization, but a plan for confiscation. What is needed is a plan of reorganization that will insure satisfactory and successful operation to the Long Island's railroad service under private rather than government management. The Pennsylvania has filed such a plan."

New Securities

Division 4 of the I.C.C. has authorized:

CHESAPEAKE & OHIO.—To assume liability for \$6,000,000 of equipment trust certificates, to

finance in part 23 diesel-electric locomotive units and 515 freight cars costing an estimated \$7,558,833 (Railway Age, July 28, page 53). Division 4's report approved sale of the certificates for 100.2256 with interest at 31/a per cent—the bid of Salomon Bros. & Hutzler and three associates—which will make the average annual cost of the proceeds to the road approximately 3.09 per cent. The certificates, dated September 1, will mature in 30 somiannual installments of \$200,000 each, beginning March 1, 1953. They were reoffered to the public at prices yielding from 2 to 3.2 per cent, according to maturity.

Security Price Averages

	Aug.	Prev. Week	Last Year
Average price of 20 repre- sentative railway stocks Average price of 20 repre-	63.38	64.03	53.16
sentative railway bonds		93.09	92.78

Dividends Declared

DELAWARE & BOUND BROOK.—50¢, quarterly, payable August 20 to holders of record August 13. ERIE & PITTSBURGH.—7% guaranteed 87½¢, less 2½¢, for Pennsylvania capital stock tax, payable September 10 to holders of record August 29.

MAINE CENTRAL.—5% preferred, \$1.25, accumulated, payable September 2 to holders of record August 15.

PHILADELPHIA, GERMANTOWN & NORRISTOWN.—\$1.50, quarterly, payable September 5 to holders of record August 11.

VIRGINIAN.—common, 62½¢¢, quarterly, payable August 15 to holders of record August 1.

VIRGINIAN.—common, 62½¢¢, quarterly, payable September 25 to holders of record September 11; 6% preferred, 37½c, quarterly, payable September 1, February 1, 1953, May 1, 1953 and August 1, 1953, to holders of record October 17, January 16, 1953, April 17, 1953 and July 17, 1953.

Investment Publications

[The surveys listed herein are for the most part prepared by financial houses for the information of their customers. Knowing that many such surveys contain valuable information, Railway Age lists them as a service to its readers, but assumes no responsibility for facts or opinions which they may contain bearing upon the attractiveness of specific securities.]

Business Week, McGraw-Hill Publishing Company, 330 W. 42nd st., New York 18. Single copies, 25 cents.

Eastern Lines Pull the Rails Down. Business Week, August 9, 1952, pp. 74-

Fahnestock & .Co., 65 Broadway, New York 6.

Illinois Central Railroad Co. Weekly Review, August 18.

H. Hentz & Co., 60 Beaver st., New York 4.

Large Income from Senior Railroad Securities, Fortnightly Review, August

Kerr & Co., National Oil bldg., Los Angeles 17, Cal.

Great Northern Railway Company. July 28, No. 1056.

Merrill Lynch, Pierce, Fenner & Beane, 70 Pine st., New York 5. Railroads Discover Oil.

Smith, Barney & Co., 14 Wall st.,

New York 5.
A Comparison, Baltimore & Ohio Railroad Company vs. New York Central Railroad Company. Railroad Bulletin No. 105, August 1.

The Leverage Postions of Railroad Common Stocks; The Arithmetic of

Railroad Shares. Railroad Bulletin No. 1(16), August 13.

Vilas & Hickey, 49 Wall st., New York 5.

Missouri Pacific Railroad Co. Reorganization Proceedings. August 1.

RAILWAY OFFICERS

EXECUTIVE

Clark E. Miller, whose appointment as assistant to president, special assignments, of the Pittsburgh & West Virginia, was announced in Railway Age July 7, was born at Dunbar, Pa., October 2, 1898, and entered railroad service in 1915 on the Baltimore & Ohio. In September 1916 he went with the Pennsylvania as clerk in the freight station at Dunbar and held various clerical positions until May 1929, when he



Clark E. Miller

became coal freight representative in the coal traffic department at Philadelphia. From 1931 to 1943 he was chief clerk to the coal traffic manager and, from then until September 1950, was coal freight agent at Philadelphia. At that time Mr. Miller left the Pennsylvania to become traffic manager of the Eastern Bituminous Coal Association, which position he held at the time of his recent appointment.

L. O. Wurm has been appointed assistant to vice-president—traffic of the Denver & RIO GRANDE WESTERN at Denver, succeeding F. H. Booth, who has been appointed to the newly created position of assistant general freight agent at Denver.

Howard E. Simpson, vice-president—traffic, of the BALTIMORE & OHIO, has been elected executive vice-president, effective September 1. J. W. Phipps, Jr. general freight traffic manager, will

succeed Mr. Simpson as vice-president —traffic, on the same date.

As reported in Railway Age July 21, C. E. Breternitz has been appointed vice-president—operations of the Kansas City Terminal at Kansas City, Mo. Mr. Breternitz joined the Union Pacific 25 years ago as a call boy, and after a series of advancements became general yardmaster in April 1944. During World War II he served as a major



C. E. Breternitz

with the U. S. Army Transportation Corps, and acted as general superintendent of German railroads in the U. S. Zone for six months. Following his release from military duty he rentered the service of the UP as assistant superintendent at Laramie, Wyo., and prior to joining the KCT was UP terminal superintendent at Denver.

As reported in Railway Age August 4, Arthur G. Plante has been appointed assistant vice-president in charge of public relations, publicity and



Arthur G. Plante

advertising of the New York, New HAVEN & HARTFORD at Boston. He was also appointed a member of the Operating Committee. Mr. Plante, a native of Worcester, Mass., entered the service of the New Haven in November 1912 as a locomotive fireman. He was later promoted to engineman, and since 1935 has been associated with the executive department in charge of legislative matters affecting the company. Mr. Plante has served as director of public relations at Boston for the past three years.

As reported in Railway Age July 7, page 162, E. G. Smith, vice-president, secretary and treasurer of the Union Pacific at New York, has retired. Mr. Smith was born at Buffalo, N.Y., on May 11, 1886, and attended New York Law School (LL.B., 1909) and New York University (LL.M., 1910). He entered railroad service in 1903 with the New York Central at Buffalo, but left that road in 1907 to join the UP as stenographer at New York, becoming cashier in 1910 and assistant treasurer in 1919. Mr. Smith was appointed treasurer in 1920, secretary in 1933 and vice-president in 1942.

FINANCIAL, LEGAL & ACCOUNTING

George S. Cowie, whose appointment as treasurer of the CANADIAN NATIONAL system was noted in Railway Age, July 21, is a native of Insch, Aberdeenshire, Scotland. He came to Canada in 1921 and became chief clerk in the treasurer's office of the Canadian Government Merchant Marine and the



George S. Cowie

Grand Trunk Pacific Coast Steamships, in Toronto. In 1923 he went to Montreal as assistant treasurer of the Canadian Government Merchant Marine. In 1929 he was appointed assistant treasurer of the CNR, including C. N. Steamships and the C.G.M.M. He has also been assistant treasurer of Trans-Canada Airlines since its inception in 1937

As reported in Railway Age July 21, page 58, F. E. Chesebrough has been appointed auditor of revenue of the Delaware & Hudson at Albany, N.Y.

Mr. Chesebrough was born in Brooklyn, N.Y., on September 15, 1886, and entered railroad service on September 5, 1902, with the D&H. After serving in various clerical positions in the office of the auditor of revenue, he became, successively, desk head clerk, head of special force compiling statistical data for management, re-audit clerk, accountant in the valuation accounting department, commission clerk in the comptroller's office, general bookkeeper in the federal auditor's office, acting chief clerk in the general auditor's office, chief clerk in the federal auditor's office, and chief clerk in the auditor of revenue's office. In February 1945 Mr. Chesebrough was appointed assistant to auditor of revenue and on January 1, 1951, became assistant auditor of revenue, which position he held until his recent promotion.

Robert McGraw, superintendent of station service and freight claim prevention of the CHICAGO, ROCK ISLAND & PACIFIC, has been appointed manager of freight claims and freight claim prevention, at Chicago. M. F. Bullis, assistant superintendent of freight claim prevention, has been promoted to superintendent of that department.

L. V. Peart has been appointed auditor of general and station accounts of the UNION PACIFIC, at Omaha.

TRAFFIC

W. P. Campion, general agent of the Delaware, Lackawanna & Western at Albany, N. Y., has been transferred to Pittsburgh, succeeding John A. McCoy, who has retired at his own request, after 47 years of service.

O. H. Griffin, general freight and passenger agent of the Missouri-Kansas-Texas at Houston, has been promoted to assistant freight traffic manager at Dallas, succeeding the late E. O. McCord. Mr. Griffin is succeeded by W. J. Dooley, and Roy Blackburn replaces Mr. Dooley as assistant general freight agent at St. Louis. O. B. Puckett has been appointed division freight and passenger agent at Dallas to succeed Mr. Blackburn. George C. Lay has been appointed division freight agent at Dallas to succeed C. H. Houston, who has resigned because of ill health.

George F. Ehlen, assistant freight traffic manager of the Spokane, Portland & Seattle, has been promoted to assistant traffic manager, and Harry W. Shields, general passenger agent, has been advanced to general freight and passenger agent, both with headquarters at Portland, Ore. Thomas J. Martin, traveling freight and passenger agent, has been made assistant to general passenger agent, and Herman F. Wilde, chief clerk, has been appointed assistant to general freight agent.

Mr. Ehlen began his railroad career in the joint offices of the Great Northern and Northern Pacific at Anoka, Minn., in 1911. After a year in military service during World War I, he joined the SP&S in 1920. His first position was in the local freight office at Portland, and in 1923 he was transferred to the traffic department where he advanced through a number of positions until May 1944, when he was made assistant general freight agent. In 1945 Mr. Ehlen was appointed general freight agent, and has held the position of assistant freight traffic manager since 1950.

Mr. Shields first entered railroad service with the Pennsylvania, and joined the SP&S in 1918 as city freight and passenger agent. After a number of advancements he was appointed assistant general passenger agent in 1943, and two years later was further advanced to general passenger agent.

H. A. Peterson has been appointed general agent of the CHICAGO GREAT WESTERN at Waterloo, Iowa, succeeding H. D. Goodwin who has been transferred to the industrial department.

Randolph B. Johnston has been appointed assistant general freight agent of the Chesapeake & Ohio at Detroit, and P. J. Chandler has been made assistant to general freight agent at Chicago.

R. E. Webster has been appointed freight agent, Chicago division of the Pennsylvania, at Argo, Ill., a newly created position.

I. M. Giles, commercial agent of the Missouri Pacific at Harlingen, Tex., has been promoted to general agent at Houston, succeeding G. A. Dickinson, promoted.

E. A. Hynes has been appointed general freight agent, sales and service; of the Gulf, Mobile & Ohio, at St. Louis.

John H. Winstead has been appointed division freight agent of the Southern at Knoxville, Tenn., succeeding C. M. Patton, deceased.

OPERATING

T. W. Goolsby, trainmaster of the Pecos division of the Atchison, Topeka & Santa Fe, at Clovis, N. M., has been promoted to superintendent, with the same headquarters, succeeding D. Trahey, deceased. L. P. Heath has been named trainmaster to succeed Mr. Goolsby.

E. N. Taylor, passenger trainmaster of the Long Island, has been appointed assistant passenger trainmaster of the Chicago division of the Pennsylvania.

John O. Woodyard has been appointed superintendent of station serv-

ice of the Chicago, Rock Island & Pacific, and Harry H. Potts, manager of merchandise service, both with headquarters at Chicago. L. B. Lowe has been named assistant superintendent of station service at Kansas City, Mo.

As reported in Railway Age August 4, page 93, John E. Mahoney has been appointed superintendent of transportation of the Delaware, Lackawanna & Western at New York, Mr. Mahoney was born at Gloversville, N.Y., and was graduated from Yale University (B.A., 1942). He was awarded a Certificate of Transportation by Yale



John E. Mahoney

in 1947. Mr. Mahoney became transportation inspector of the Lackawanna on August 1, 1947, and was named division car agent at Hoboken on January 1, 1948. Later he became transportation inspector, assistant trainmaster at Scranton, supervisor of station service, and assistant trainmaster of the Morris and Essex division at Hoboken.

As reported in Railway Age July 21, W. F. Mitchell has been appointed



W. F. Mitchell

superintendent of terminals of the St. Louis-San Francisco at St. Louis. Mr. Mitchell began his railroad career in (Continued on page 61) (Continued from page 56)

1909 as a fireman on the Cincinnati, New Orleans & Texas Pacific (now part of the Southern), and several years later went with the Frisco as brakeman. He was appointed acting superintendent at St. Louis in January of this year, serving in that capacity until his recent appointment.

As Railway Age reported on July 21, Robert W. Hopkins has been appointed terminal superintendent of the Union Pacific at Denver, Mr. Hopkins entered the service of the UP in 1935



Robert W. Hopkins

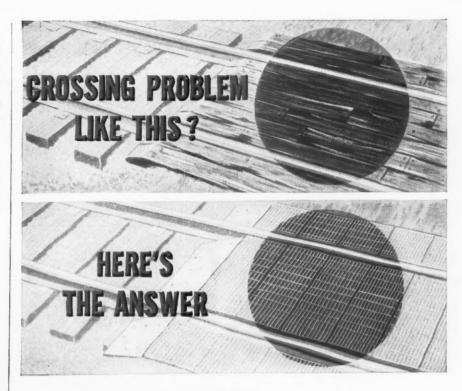
as call boy and messenger at North Platte, Neb. He subsequently served as switchman and yardmaster, and in 1948 was advanced to assistant general yardmaster and assistant terminal superintendent. In 1950 Mr. Hopkins was further promoted to transportation assistant to the vice-president at Omaha.

As noted in Railway Age July 21, G. R. Bowman has been appointed general superintendent of the New YORK, CHICAGO & St. Louis at Belle-



G. R. Bowman

vue, Ohio. Mr. Bowman was born in New Haven, Ind., September 10, 1893, and entered the service of the Nickel Plate in 1910 as a clerk at North Find-



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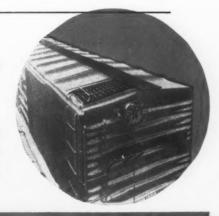
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lay, Ohio. He was employed in various capacities until he became trainmaster of the Buffalo division, at Conneaut, Ohio, in 1942. Thereafter he served as trainmaster of the Cleveland division, assistant superintendent of the Buffalo-Cleveland division, and superintendent of the same division. He was appointed assistant general superintendent for the system in 1948.

Myron B. Phipps, whose appointment as general manager of the New York, Chicago & St. Louis was announced in Railway Age July 21, was born in Bellevue, Ohio, April 24, 1900. Starting his railroad career in 1917 as a baggageman for the Nickel Plate at Bellevue, Mr. Phipps successively became a machinist helper, a timekeeper in the transportation department, and train dispatcher, and then held various



Myron B. Phipps

clerical positions in Cleveland and Chicago. He later served as yardmaster at Fostoria, Ohio; night general yardmaster at Cleveland; assistant trainmaster at Fort Wayne; terminal supervisor in Cleveland; and trainmaster, assistant superintendent and superintendent at Conneaut, Ohio. He was appointed assistant general superintendent at Cleveland in 1946, and became general superintendent at Bellevue in 1948, the position he held at the time of his recent appointment.

As reported in Railway Age August 4, page 93, Fred Diegtel has been appointed general superintendent of the Delaware, Lackawanna & Western at New York. Mr. Diegtel was born at Scranton, Pa., on March 15, 1906, and entered the service of the Lackawanna in September 1922 as a clerk in the office of the car accountant at Scranton, subsequently becoming timekeeper and assistant chief clerk there. In 1939 he went to New York as secretary to vice-president of operations and two years later became operating inspector there. He was appointed assistant freight trainmaster at Hoboken in 1942, trainmaster at Binghamton, N.Y., later that same year, division superintendent at Scranton in October 1943, and division

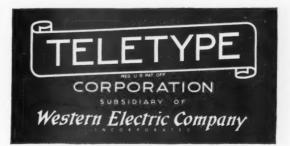
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superintendent at Hoboken in January 1949. Mr. Diegtel was president of the



Fred Diegte

American Association of Railroad Superintendents in 1949-1950.

As reported by Railway Age on July 28, H. Petrie has been promoted to superintendent of the Tennessee, Alabama & Georgia at Chattanooga, Tenn., with jurisdiction over maintenance of way, maintenance of equipment and transportation departments, to succeed A. C. Craighead, who has retired. Mr. Petrie, who studied mechanical engineering at the Polytechnic Institute

in Brooklyn, N.Y., entered railroad service in March 1942 as a laborer on the Southern at Charlottesville, Va., after having served with Sperry Products, Inc., as assistant operator, operator, and chief operator on detector cars since July 1937. He advanced through the positions of student ap-



A. C. Craighead

prentice and assistant supervisor of track, and in June 1944 was promoted to supervisor of track on the Cincinnati, New Orleans & Texas Pacific (Southern) at Dayton, Tenn. At the time of his recent appointment on the TA&G, Mr. Petrie was serving as track super-

visor on the CNO&TP at Jackson. Ala.

Mr. Craighead began his railroad career as a brakeman on the Chattanooga Southern (now TA&G) in July 1905. In 1911 he went with the TA&G as chief train dispatcher, leaving that road in 1919 to go with the Ann Arbor as superintendent. Mr. Craighead returned to the TA&G in April 1945 as trainmaster at Chattanooga, and was promoted to superintendent in 1948.

MECHANICAL

As reported in Railway Age August 4. page 94, William J. Harlow has been appointed general mechanical superintendent of the New York. New Haven & Hartford at New Haven, Conn. Mr. Harlow, a native of Cambridge, Mass., entered the service of the New Haven in 1923 as an electrical helper at the Dover Street enginehouse, Boston. He subsequently served as electrician, night foreman, shop foreman and general foreman before going to



William J. Harlow

New Haven in 1947 as assistant master mechanic. In 1948 he was appointed general foreman of the new dieselelectric shop at New Haven. He was promoted to assistant superintendent of locomotive maintenance in 1950, and the following year to assistant general mechanical superintendent, the position he held until his recent promotion.

ENGINEERING AND SIGNALING

Henry C. Archibald has been appointed assistant chief engineer of the Boston & Maine at Boston, and Foster R. Spofford has been appointed assistant to chief engineer (Railway Age, August 4, page 96). Mr. Archibald was born on July 26, 1891, at Everett. Mass., and attended Tufts College. School of Engineering (B.S.C.E., 1915). He entered railroad service on June 21, 1915, as a structural draftsman in the office of the engineer of structures of the B&M at Boston. After service during World War I as a second lieutenant, 71st Field Artillery, he returned to the B&M in his former position, subsequently be-

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Division of the Southwestern Petroleum Company Box 789 • Ft. Worth 1, Tex. coming supervisor of bridges and buildings at various points, assistant division engineer at Fitchburg, Mass., and division engineer at Springfield, Mass. In November 1941 Mr. Archibald was



Henry C. Archibald

promoted to engineer of track at Boston and on March 16, 1942, he became assistant to chief engineer, which position he held until his recent promotion. From December 1, 1948, through June 30, 1952, he was also secretary to the Budget Committee in addition to his other duties.

Mr. Spofford was born at Phillipsburg, N.J., on March 26, 1906, and attended Tufts College, School of Engineering (B.S.C.E., 1927). He entered railroad service on March 1, 1929, with the Lackawanna. On October 14, 1929, Mr. Spofford joined the B&M as a structural draftsman in the office of the engineer of structures at Boston. He was appointed assistant supervisor bridges and buildings at Dover. N.H., in December 1937, supervisor of bridges and buildings in January 1940, and assistant division engineer there in February 1945.

As reported in *Railway Age* July 28, page 56, **T. H. Jenkins** has been appointed engineer of bridges and struc-



T. H. Jenkins

tures of the CANADIAN NATIONAL at Montreal, and, in addition, has been

assigned the work formerly performed by the assistant chief engineer—construction, which position has been abolished. Mr. Jenkins was born at Toronto on May 1, 1902, and attended the University of Toronto (B.S. in C.E., 1925). He entered railroad service on November 1, 1926, as draftsman in the office of the chief engineer of the Grand Trunk Western at Detroit, becoming chief draftsman there in 1940 and bridge engineer in 1947. Two years later he was named bridge engineer for the Central region, CNR, at Toronto and in May 1951 he became engineer of bridges for the system.

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Dr. Norbert J. Roberts has been appointed chief medical officer of the Pennsylvania at Philadelphia. During the past three years Dr. Roberts has served on the medical staff of the Standard Oil Company (New Jersey).

H. W. Houghkerk has been appointed to the reestablished position of captain of police of the Delaware & Hudson at Albany, N. Y., and will assume all duties and responsibilities presently covered by the position of chief of police, which has been abolished.



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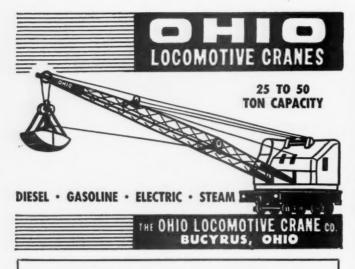
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